

CHAPTER VII

MANDOLINE MAKING

CONSIDERING the popularity of the mandoline, the dearth of home-made instruments is surprising, especially as the majority of cheap bought ones are usually very poor as regards tone and correctness of the fretting. A flat-backed instrument is easily and cheaply made, as the following instructions show. A mandoline made in the manner described in this chapter has been in use for many years, and has been played in public, both as a solo instrument and by the leader of a mandoline band, and it compares favourably with many high-priced instruments for quality and evenness of tone. Moreover, there is no sign of defect at the place where so many instruments give way, namely, at the joint of the handle and the body.

First obtain a piece of well-seasoned hard wood, oak or walnut, free from knots, and cut to size, 14 in. by $2\frac{1}{2}$ in. by $1\frac{1}{2}$ in.; plane it true and square, and mark it out as follows:—At A (Fig. 91) draw a line on the $1\frac{1}{2}$ in. side $5\frac{1}{2}$ in. from one end, and another B $3\frac{1}{2}$ in. from the other end. From c to D draw a line, c being 1 in. and D $\frac{1}{2}$ in. from the top edge. Next join D to E and draw AG parallel, and connect H to I. Then cut away the darker portions. On the top, which is the $2\frac{1}{2}$ in. side, draw a line down the centre, then draw lines A and B (Fig. 92) corresponding with A and B (Fig. 91); and on A mark the points c, each $\frac{1}{2}$ in. from the centre line, and on B mark the points D, each $\frac{1}{2}$ in. on either side of the centre line. Join cD, continuing the lines as shown, and cut away the darker portions as before to produce the handle in the rough. The neck between c and D (Fig. 91) should then be rounded and the whole smoothed with sand-paper.

Next obtain a cheese tub, and from the best and smoothest part cut a strip $2\frac{1}{2}$ in. wide and $30\frac{1}{2}$ in. long for the rim, and trim it down to $2\frac{1}{2}$ in. wide. This, of course, is already in a circular form, and will bend to the required shape if steamed a little. For the bending,



Fig. 91.



Fig. 92.

Figs. 91 and 92.—Setting out Handle of Flat-backed Mandoline.

make an inside mould of thick wood, shaping it something like Fig. 93, and making it $9\frac{1}{2}$ in. long from A to B, $3\frac{1}{2}$ in. across at A, and $7\frac{1}{2}$ in. across at c, the widest part, $4\frac{1}{2}$ in. from B. Cut also two $\frac{1}{4}$ -in. holes (shown in Fig. 93) to facilitate the removal of the mould from the body of the instrument. Next cut a piece of wood $\frac{3}{8}$ in. thick to

Fig. 94, which, for convenience sake, may be called the partition. It must be of the same width as the mould at its narrow end A (Fig. 93), with the ends bevelled slightly to continue the curve of the mould as at A B (Fig. 95). The piece cut away fits the handle closely. The height of the partition is $2\frac{1}{2}$ in., the same as the rim, which can now be steamed and bent round the mould, with the partition held close to the flat end of the mould, and in a perfectly upright position. The ends of the rim, when fixed to the partition, must be quite level, and this can

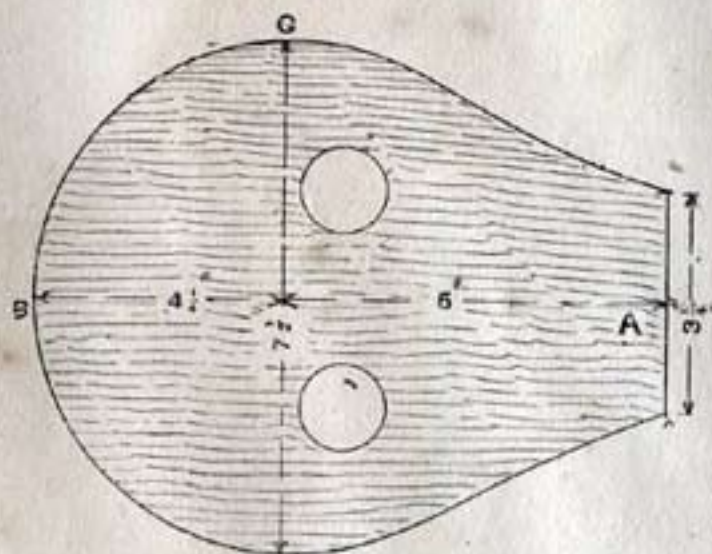


Fig. 93.—Inside Mould for Flat-backed Mandoline.

be ensured by marking a point exactly half way round the rim, and making a corresponding mark half way round the mould, and, when bending, putting the two marks together. The rim can be fixed and kept in shape by two fine brass screws on each side, screwed through the rim into the partition. When the wood is dry these screws can be withdrawn a little, and some hot glue run in the joint, the screws being tightened up again. Probably it will be found that the protruding ends of the rim are too close together for the handle to slip in easily, and that the rim just below the partition is not

quite close to the mould; however, this will close up when the handle is forced between the ends of the rim, the wood springing to bring it to the required shape. Shave off the ends of the rim to a knife-edge from the inside to make a close joint with the handle, which can then be placed in position, the ends of the rim reaching to B (Fig. 92). Fix the handle with good glue and fine screws, both through the rim and into the side, and through the top into the partition, being careful not to split the rim. Take every precaution to get the handle in line with the rim, the handle being $\frac{1}{8}$ in. higher than the top edge of the rim, as shown in Fig. 96. Also see that a line drawn down the centre of the handle would, if continued, pass through the centre of the body.

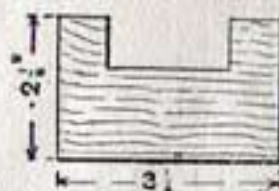


Fig. 94.



Fig. 95.

Figs. 94 and 95.—Partition for Flat-backed Mandoline.

Then, from rather soft wood, with a straight, even grain, but no knots, and $\frac{1}{8}$ in. thick, cut the belly and the back, which must be cut to fit the shape of the body. The piece for the belly must be cut to fit the lower end of the handle, so that in position the face of the handle and the belly shall be quite flush.

The back may be 1 in. shorter at the neck end, and the rim cut away to meet it, the resulting corner being afterwards covered with a flat piece of wood for finish. This is illustrated at A (Fig. 96), which shows the back glued into position and fixed with hardwood pegs or fine brass brads. The mould can be removed as soon as the back is properly fixed; in removing ease it out gently.

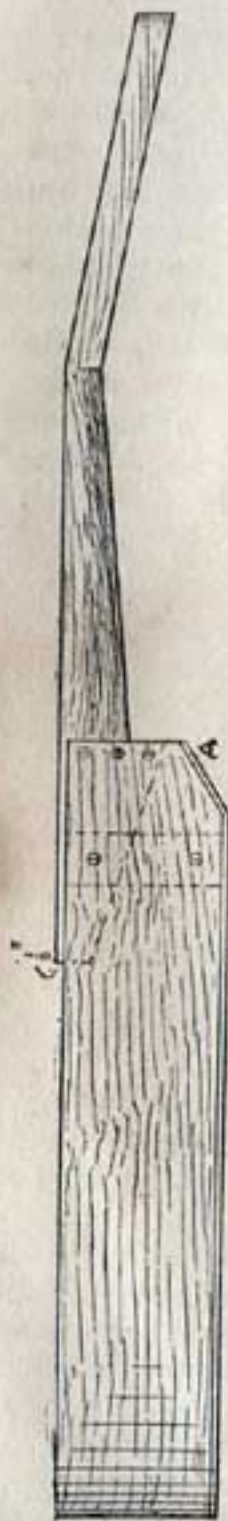


Fig. 96. — Fixing Handle and Back of Mandoline.

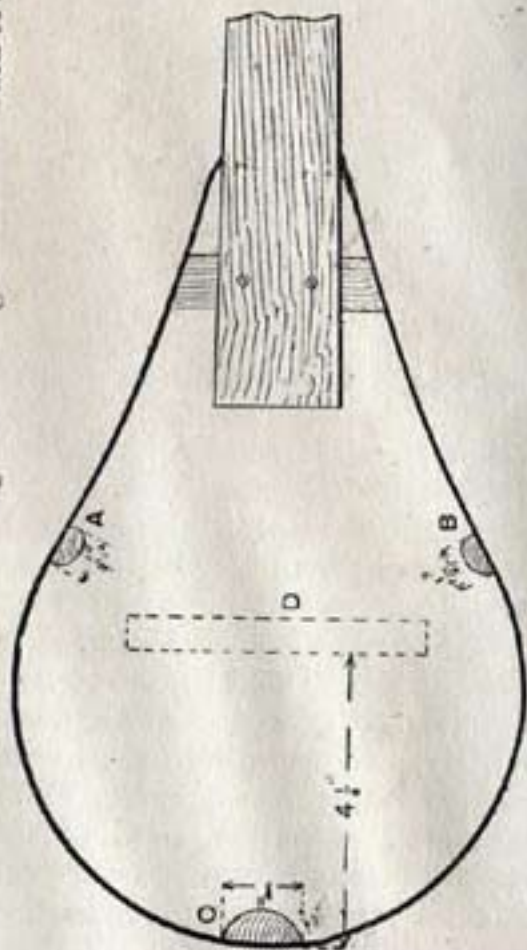


Fig. 97. — Strengthening Blocks on Rim of Mandoline.

Make two small blocks of wood $\frac{1}{2}$ in. wide, and glue them to the inside of the rim at A and B (Fig. 97), and one 1 in. wide at C. All are shaped to fit close to the rim and add to the strength. A thin strip is glued to the inside of the front and one to the inside of the back, about $4\frac{1}{2}$ in. from the tail end of the body, as shown by the dotted lines in Fig. 97. Upright between these strips is set a sound-post D, about $\frac{1}{2}$ in. to the right of the centre of the body. It must fit well between the belly and back, and can be held upright in position by a drop of glue whilst the front is fixed in position, after

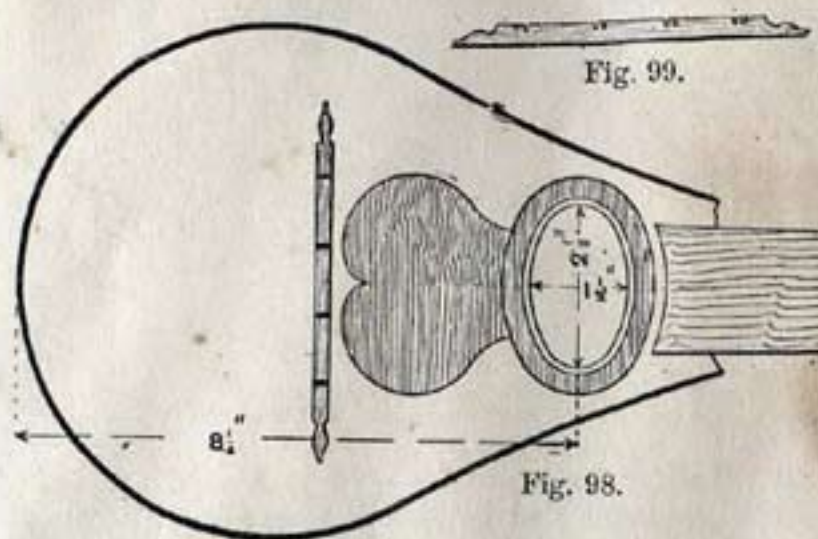


Fig. 98. — Position of Sound Holes and Bridge on Mandoline.

Fig. 99. — Mandoline Bridge.

which, of course, the pressure of the front and back will keep it up.

Before attaching the belly, the inside of the body should be cleaned off, and made smooth everywhere with glass-paper, so as not to leave any rough or loose parts likely to rattle or jar. Then the inside should be neatly lined with dark-coloured paper, as, the sound-hole being rather large, the interior can be seen. At this stage any ornamentation to the front should be done. A simple design of dark cigar-box wood can be inlaid

round and below the sound-hole, leaving a light line round the edge of the hole, something like Fig. 98; anything more elaborate might appear rather out of place on this instrument.

The centre of the oval-shaped sound-hole, $1\frac{1}{2}$ in. by $2\frac{1}{2}$ in., is $8\frac{1}{2}$ in. from the tail end of the body (see Fig. 98). The hole should be cut and a straight bar glued right across the inside of the belly, close to the lower edge of the sound-hole. Then put the sound-post in position, and glue and fix the belly as for the back. Smooth everything with glass-paper, finishing off with very fine paper.

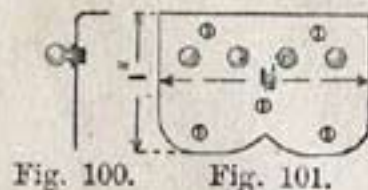


Fig. 100. Fig. 101.

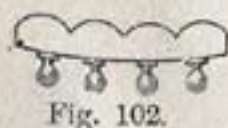


Fig. 102.

Figs. 100-102.—Tail-piece for Mandoline.

Next make the fingerboard of $\frac{1}{2}$ -in. walnut, cutting it to fit the handle and leaving it long enough to reach the sound-hole. This must be glued to the face of the handle, and will consequently stand $\frac{1}{2}$ in. above the belly. An ebony nut, nicked to take the four pairs of strings, is fixed at the top end of the fingerboard, $17\frac{1}{4}$ n. from the tail end of the instrument.

In fretting the fingerboard much care must be taken. First find the place for fret No. 1 by dividing the distance from the bridge to the nut by eighteen, and making a mark on the fingerboard at this distance from the nut. For fret No. 2 measure as before, but from fret No. 1 to the bridge, instead of from the nut to the bridge; divide by eighteen to get the distance of fret No. 2 from fret No. 1. Then measure

from fret No. 2 to the bridge, and divide again as before for fret No. 3; and so on, until all the frets are marked, the distance between the frets thus de-

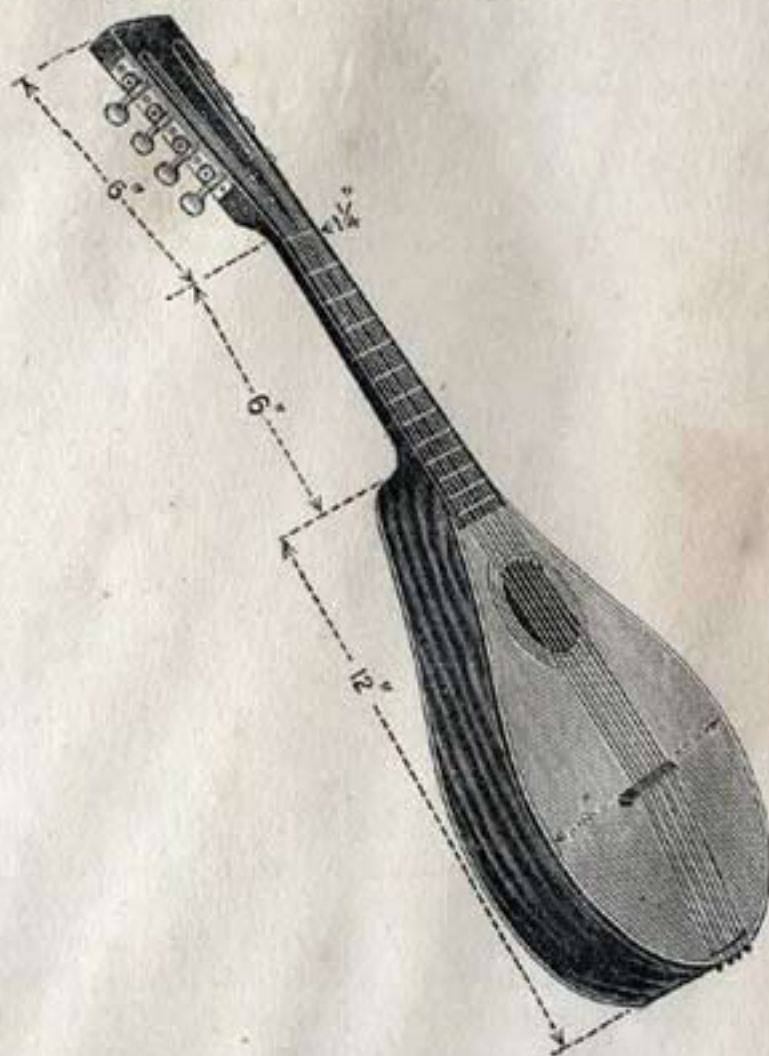


Fig. 103.—American Mandoline with Machine Head.

creasing. Fret wire, which is sold for the purpose by most musical instrument dealers, should be let in by carefully making narrow cuts at the marks, and hammering in the wire, which must be previously cut to the proper lengths.

The bridge (Fig. 99), 5 in. long, should stand $12\frac{1}{4}$ in. from the ebony nut, and can be made of walnut. It must be high enough to raise the strings about $\frac{1}{2}$ in. above the belly of the instrument, and the nicks for the outside pairs of strings should be $1\frac{1}{2}$ in. apart, the others being spaced equally.

A tail-piece (Figs. 100 to 102) of thin sheet brass, 1 in. by $1\frac{1}{2}$ in. wide, with four knobs to hold the looped ends of the strings, should be made and screwed to the end of the instrument, so that the screws enter



Fig. 104.—Outside Mould for American Mandoline.

the block c (Fig. 97). A pleasing appearance is presented if this tail-piece is made of a fancy pattern and cut from German silver sheet. The final finishing can now be done according to taste, but a good plan is to stain the rim, back, and the handle to a dark rosewood colour, leaving the belly white, and then to French polish or varnish all over, with the exception of the fingerboard, which should have a little oil rubbed in.

The only thing now needed besides the strings is the machine head, which it is advisable to buy ready

made at the place where the strings and fret wire are bought. It will consist of two strips containing the screws and pegs for holding the strings, and each strip should be screwed to the under side of the flat slope at the end of the handle, with the bone nuts protruding from the side, whilst the pegs for the strings stick upwards through holes made in the wood to receive them. (The usual shape of machine head is shown in Fig. 103, which illustrates an American pattern mandoline and gives all essential measurements; this instrument is made in the outside mould represented by Fig. 104.)

A few mother-of-pearl dots, made from an old knife handle or tops and backs of collar studs, should be let into the fingerboard between the fourth and fifth, the sixth and seventh, the ninth and tenth, and the eleventh and twelfth frets, as this not only greatly improves the appearance, but shows the most used positions at a glance.