

COACH JOINERY

FITTINGS AND FINISHINGS

MOTOR-CAR WORK

General Requirements.—The term coach joinery is applied to the operations involved in the construction of frames, panels, cabinets, inside doors, and all the polished and ornamental woodwork that is used in the interior of a vehicle, together with a few details that are fitted outside. In road vehicles the work is confined to the making of glass frames ; but in motor cars and railway carriages the range of work is very extensive, the interior fittings and decorations sometimes being very lavish, calling for a knowledge of cabinetmaking as well as for joinery of the best class. Neat workmanship and a good finish are essential, especially for woodwork that has to be polished, as this operation will generally reveal defects that would otherwise not be noticeable. The various details referred to are not fixed in their respective positions by the coach joiner, this part of the work being done by the *finisher*.

EXTERIOR FITTINGS

Tool Boxes.—Among the outside fittings made by the coach joiner are boxes for holding tools, accumulators, and acetylene-gas generators ; these boxes are made of mahogany or walnut and are fixed on the step platforms. The tool box is made long enough to carry a tire inflator, or from 22 to 24 inches ; it should be about 10 inches deep and as wide as the step on which it is

INTERIOR DECORATIONS

Application of Banding and Stringing.—Many of the schemes of decoration that are applied to the interiors of high-class motor cars are based on the various furniture styles, that is, on styles of decoration adopted by designers of furniture at different periods of history. Generally speaking, the effects are produced by the use of panels or veneers of different woods, which are often ornamented by inserting pieces of wood, ivory, metal, etc.; a piece of work so decorated is said to be inlaid. Much use is made of specially manufactured *lines* and *bands*, which are constructed of various coloured woods and are let into the surface of the work. A line, which is also called a stringing, is simply a narrow stripe of a single colour. These lines are from $\frac{1}{16}$ to $\frac{1}{8}$ inch in width, the smaller widths having the thickness of a saw-cut veneer only, while the $\frac{1}{8}$ -inch widths are sometimes made $\frac{1}{8}$ inch thick, being then known as square lines. When the narrow stripe is of two colours, side by side, it is sometimes called a double stringing, and consists of two strips of different colours glued together, and having a total width of about one-twelfth of an inch. Among the various woods used for stringings are boxwood, holly, satinwood, and blackwood, the last being usually pearwood stained black.

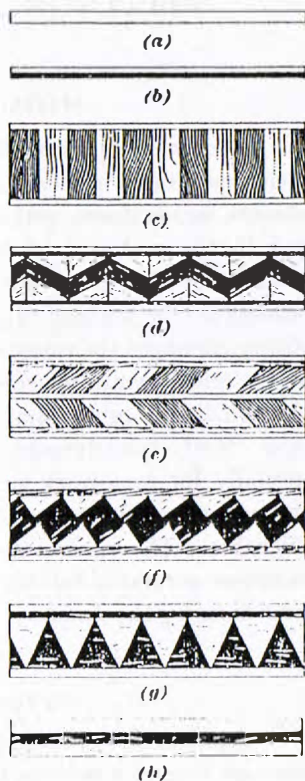


FIG. 4

8. Bandings are made in several widths, varying from $\frac{1}{4}$ inch to 1 inch, the thickness being that of a saw-cut veneer. Natural woods of several varieties are used in the formation of bandings of different patterns, as well as wood that has

to be fixed. An example of this class of work is shown in Fig. 1, in which the sides and ends are secured together with secret dovetails. The bottom is rabbeted in, and the lid *a* is $1\frac{1}{2}$ inches deep in front and $\frac{5}{8}$ inch deep at the hinge joint *b*, which is made about 2 inches from the back edge. The front of the lid is rounded over to improve the appearance, and is strengthened by a corner piece inside. A single long hinge made of brass and known as a *piano hinge* is used for hanging the lid, and a polished brass door-plate *c* is screwed round the edge to keep water out; the lid is secured with a spring lock *d*. Brass screws *e* are inserted to hold the box more firmly together, their heads being filed down flush with the surface of the wood before the latter is polished. Tool boxes are sometimes made with lift-out trays and sliding drawers, in which case the front is hinged at the bottom and falls down to allow the drawers to be pulled out.

Boxes for Accumulators and Generators.—The dimensions of the boxes designed to hold accumulators and generators will

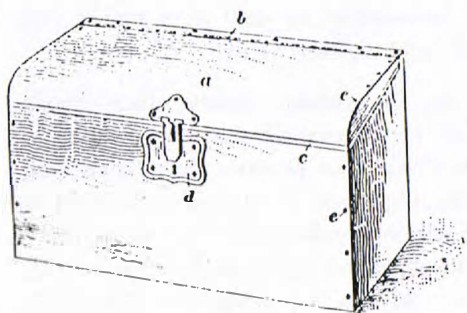


Fig. 1

depend on the size of these details; they should fit closely into their respective boxes so that there will be no play in any direction. If a hinged lid is fitted the hinge should be at the back, to allow the contents of the box to be lifted out when the lid is

opened. In many cases the lid is not hinged, but is made to lift off altogether, the top edges of the box being rabbeted on the outside and the lid rabbeted on the inside to fit over them. A spring lock or catch is then fitted on each end of both lid and box, and holes must be bored to allow tubes or wires to pass through, as may be required.

when freshly cut. This wood is of an oily nature and is very heavy, dense, and hard; in colour it is a very dark red, being almost black when polished. The finest varieties of rosewood are made into sawn and knife-cut veneers, but as the wood is very difficult to dry and season properly, the veneer, after it has been laid, will sometimes shrink and cause the joints to open.

Kingwood.—The name kingwood is given to a hard, close-grained wood of a dark purple colour, the figure being composed of darker streaks. Another name for this wood is *violet-wood*, and it is imported from Central America in the form of sticks that seldom exceed 6 inches in width. On account of its small size this wood is chiefly used in veneer thickness for bandings and inlays.

Harewood.—Sycamore, in addition to being used in its natural state, is sometimes stained to a bluish-grey. In process of time this turns to a brownish-grey colour, somewhat resembling that of the fur of a hare; hence, the name harewood. Harewood, known also as *greywood* or *mousewood*, is used as a veneer, its delicate colour blending well with lighter woods.

Other Woods Used for Decoration.—Many other woods are used, to a limited extent, for decorative purposes; some in their natural state and others dyed to produce various desired colour effects. Owing to the high cost of ebony, this wood is often imitated by staining other woods black, the substitutes most generally used being close-grained woods such as pearwood, sycamore, birch, and maple. Although pearwood is classed as a hardwood, it works easily on account of its even texture. Inlay woods are sometimes imitated by other materials; celluloid, for example, which is obtainable in black and white, is used for both dark and light stringings.

PANEL WORK

Panelled Roof for Limousine.—A very effective method of panelling the roof of a limousine consists in covering it with ordinary straight-grained veneers, arranged as shown in Fig. 8

been stained green, blue, black, red, and other colours. Bandings are used to outline the features of the design, to form boundaries for panels, and to form lines of demarcation between different woods. A selection of patterns used in decorative work is shown in Fig. 4, in which (a) represents a stringing, (b) a double stringing, and (c) to (h) bandings of various designs. Almost any desired pattern of this form of decoration can be obtained from veneer merchants, as well as other materials for inlaid work, such as tortoiseshell and mother-of-pearl. As a rule, it will be found much cheaper to purchase bandings and stringings ready made than to make them by hand, or to produce them in a shop that is not specially equipped for the purpose. Manufactured bandings and stringings are made in lengths of 30 to 40 inches, varying with different makers.

DECORATIVE WOODS

The characteristic features of some of the woods used for decorative purposes have already been described in the Section on *Timber*, but in high-class coach joinery other woods are also used, either alone or in combination ; these are mostly hardwoods. It is not really economical to use cheap and inferior hardwoods, owing to the extra expense entailed in cleaning up and polishing ; in any case the wood used should be free from shakes, knots, and sap.

Tulipwood.—The wood generally known by the name of tulipwood is a native of South America ; it is yellowish in colour, and has red or rose-coloured stripes of figuring. Tulipwood is very hard and close-grained, and is used in veneer thickness for bandings, and also for inlaying into mahogany and other woods, its brilliant colouring showing to great advantage when polished. This wood must not be confused with that of the tulip tree, which grows in North America and is variously known as *whitewood*, *canary-wood*, and *yellow poplar*.

Rosewood.—The timber known as rosewood is obtained from Brazil and the West Indies. It is not the product of a rose tree, but derives its name from the natural fragrance of the wood

screws will be inserted to secure the panel to the roof; these points are marked by pushing a small bradawl through the panel. The veneers *a* are laid on the panel one at a time, and are marked off to the diagonal lines. They are then laid on a board and fastened down temporarily with veneer pins, and the edges are cut with a sharp knife, which is guided by a straightedge. Each veneer is cut separately, and they are then laid on the panel with hot glue and put in a veneering press to dry.

Back and Side Panels for a Limousine.—The upper side and back panels are arranged to match the roof, as illustrated in Fig. 9, which shows the back of the car and one of the side quarters. The corner panels, one of which is shown at *a*, are made first, and if the corners are at all sharp it will be necessary

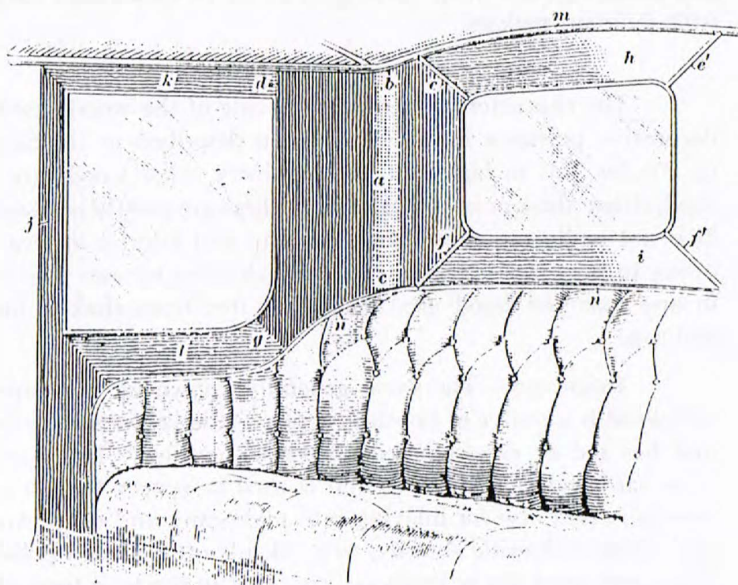


Fig. 9

to build up laminated panels $\frac{3}{4}$ inch thick to the required shape. If the corners are well rounded, with a radius of not less than 6 inches, ordinary 3-ply mahogany panels $\frac{3}{4}$ inch thick may be used, as these will bend into the corners without steaming. A stiff paper template will be required to get the shape of the top

at *a*. The veneers are not laid directly on the roof, but are fitted and laid on a panel of 3-ply birch that can be pinned on in one piece. Large panels of this description should be about $\frac{1}{4}$ inch thick ; they may be purchased ready-made, but not cut to shape. A template is first made by taking two sheets of brown paper, each a little larger than one-half of the roof, and fastening these temporarily on the roof with a few tacks. The paper is then

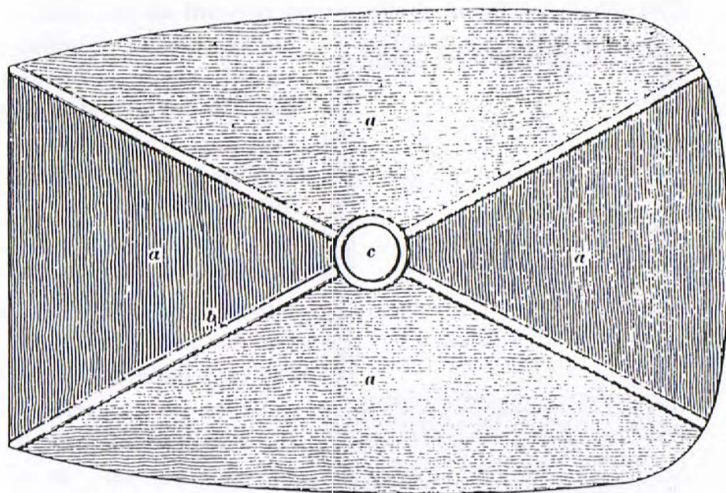


FIG. 8

pushed into the corners and creased along the sides and ends to indicate the exact shape of the roof ; the edges of the two papers, where they overlap each other, are pasted together. The template is now removed from the roof and cut to the creases mentioned, after which it is tried against the roof again to ensure that no mistake has been made. If it is correct the paper is stuck on the panel, and the latter is cut to the required shape.

When the edges of the panel have been trimmed and it has been tried against the roof, the positions of the roof bars are marked on its edges and diagonal lines are drawn with a pencil from corner to corner. Lines representing the centres of the roof-bars are now drawn across the panel, and the intersection of these lines with the diagonal lines will mark the points where

are taken down and sent to the polisher. It is advisable to mark all the mouldings on the back with a pencil, for guidance in refixing them in their proper places.

Door Decoration in Sheraton Style.—Very rich effects can be obtained by means of the Sheraton style of decoration, the dark Sheraton being preferred on account of its warmer tone ;

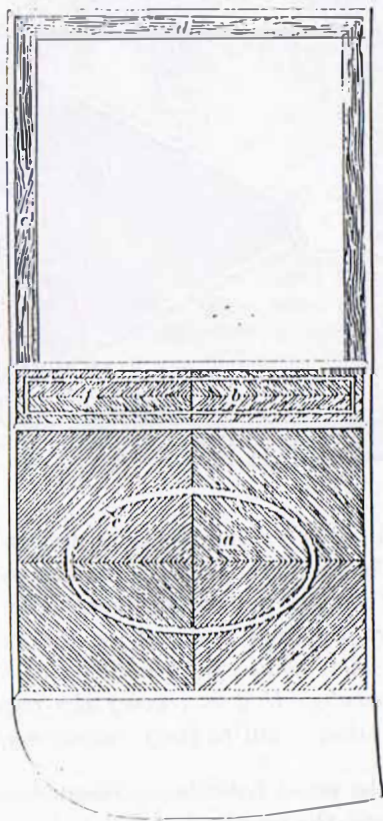


FIG. 13

the method of panelling a door in this style is illustrated in Fig. 13. The bottom panel *a* and the waist panel *b* are veneered with Cuban mahogany, quartered and laid with the grain running diagonally across the quarters as shown. The panels *c* on the door pillars, and the panel *d* on the top rail, are very narrow and do not require to be quartered. When the veneers have been laid and the glue has set, the panels *a* and *b* are inlaid with bandings having a satinwood centre and lines of ebony and boxwood on each side ; the bandings generally used are about $\frac{3}{4}$ inch wide.

The oval inlay *c*, Fig. 13, cannot be obtained ready-made in this shape, and the joiner will have to make this up himself. Two templates are required, preferably made of sheet metal ; one of these

is cut to the outside line of the oval and the other to the inside line. The larger template is first set in position on the panel and the veneer is cut through with a knife, working round the