

Making a Wheelbarrow

The first step in making this wheelbarrow is to make the wheel:

► Lay two layers of planks across each other. Make sure that the planks are right next to each other. Then nail the two layers together. Bend the ends of the nails over to keep the planks together.

► Mark a circle for the wheel with radius 22,5cm on one side. Use a piece of wood with nails hammered 22,5cm apart at each end.

► Cut out the wheel with a saw. As you cut, take off the waste around the edge with a chisel. Smooth the outside of the wheel with a plane or chisel.

► Nail a strip of rubber to the outside of the wheel to protect the wood.

The next step is to make the axle with a piece of hardwood, like bluegum, 30cm long and 5cm square. It must be dry otherwise it will shrink and become loose in the wheel.

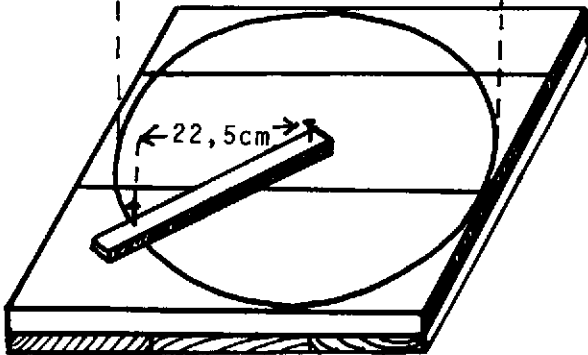
► Mark a 5cm square hole in the centre of the wheel. Drill a small hole and make it square using a mallet and chisel. Do not cut the hole too big, because the axle must fit tight.

► Round the ends of the axle. Now you can attach the axle to the wheel. Nail blocks of wood to the axle and the wheel.

marking out the wheel

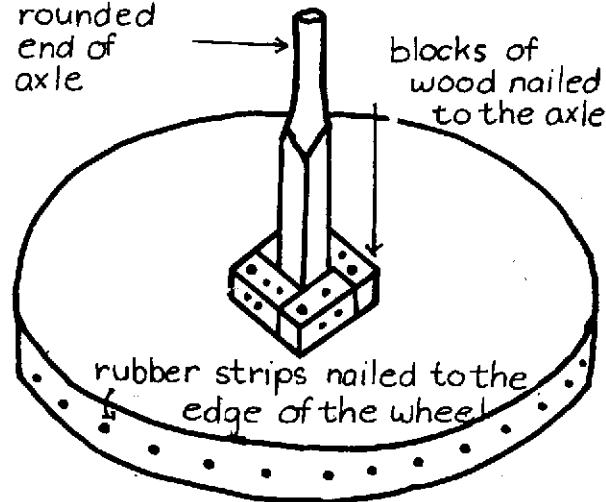
← 45 cm →

← 22,5cm →

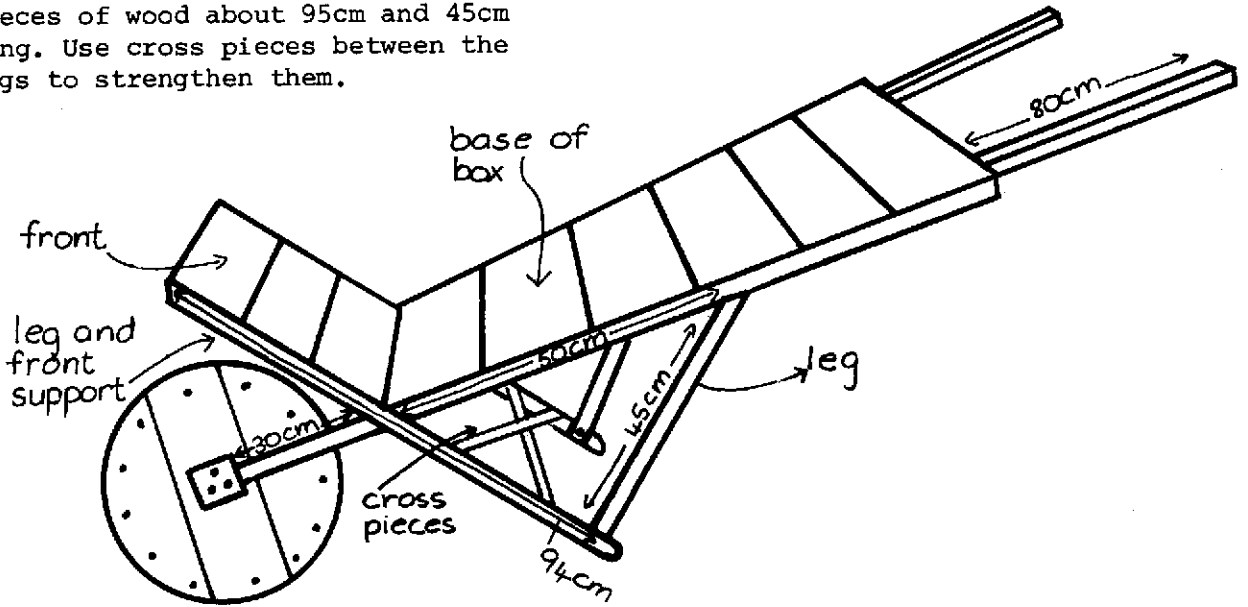
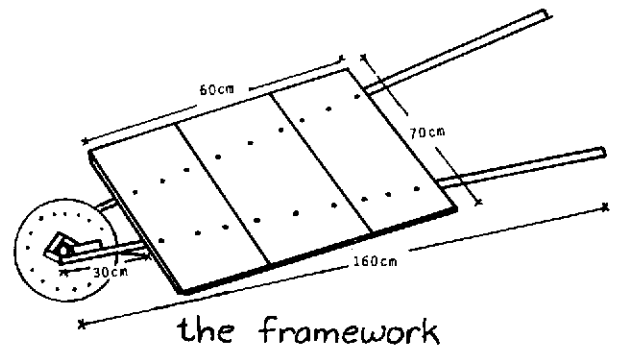


rounded end of axle

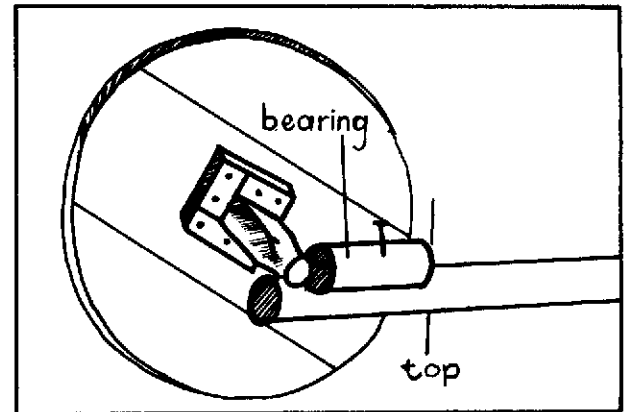
blocks of wood nailed to the axle



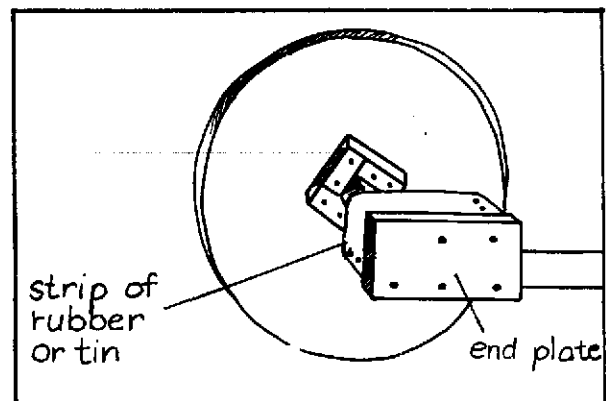
Then make the handles of the wheelbarrow with 2 strong pieces of wood 160cm long. Use bluegum branches or wood 5cm square. The axle shows you how far apart the handles must be at the front. Nail the planks for the base of the wheelbarrow onto the handles. Make the bottom 60cm long and 70cm wide, the handles 70cm apart where they are held. Make sure to leave a space for the wheel to fit between the base and the axle. Make each leg for the wheelbarrow from 2 pieces of wood about 95cm and 45cm long. Use cross pieces between the legs to strengthen them.



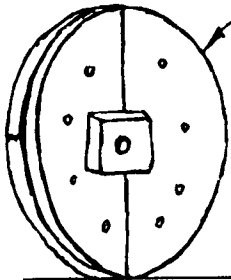
The final step is to put on the wheel:
 ▶ Turn the wheelbarrow upside down and lay the wheel in place. The axle should be long enough to rest on the handle poles without sticking out. Screw or nail a block of wood to the handle poles behind each end of the axle. The blocks act as bearings.



▶ Now you need a piece of wood that will cover the end of the axle, the bearing block and the outside edge of the handle. Screw or nail this piece of wood in place.
 ▶ Put grease or animal fat on the end of the axle and the bearing block.
 ▶ Nail a strip of tin or rubber to the bearing block. Take it over the end of the axle and nail it to the handle pole to hold the axle in place. This piece must not be too tight or it will be difficult to turn the wheel.



You can use the wheelbarrow without sides to carry full sacks or building blocks. If you want to carry soil or other loose material put sides on.



4 pcs.
1" X 12"
JOINTS
AT
90°



6" X 6" BLOCKS

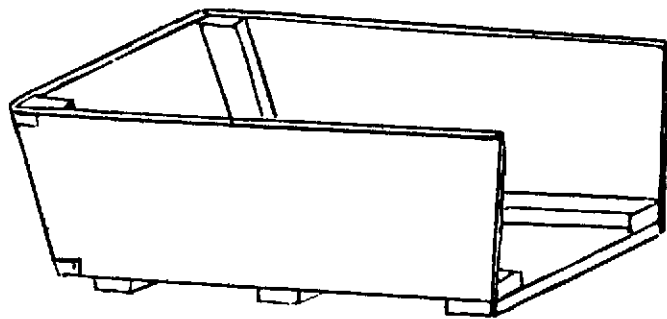


FIG. 4

The box for the wheelbarrow (Figure 4), is of $\frac{1}{4}$ inch exterior grade plywood. Along the edges of the bottom, and at the back, nail or screw 1×2 reinforced strips. The suggested size for the bottom is 22×32 inches. On the underside there are 1×3 reinforcements. The one on the front edge is especially important.

It is necessary to strengthen the corners with strips of galvanized steel, which are shown in Figure 4.

The handles are 2×2's (saplings are a possibility for this use), rounded for easy gripping.

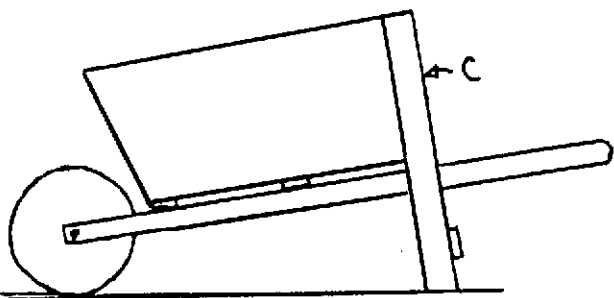


FIG. 5

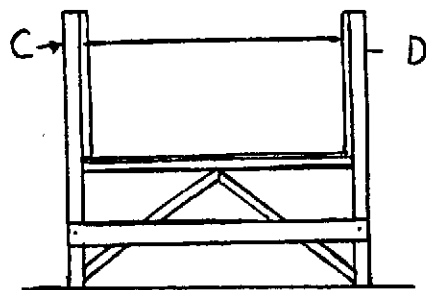
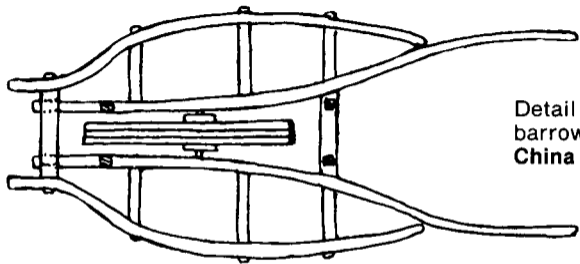


FIG. 6

Uprights C and D (Figures 5 and 6) reinforce the sides of the box, and serve as a stand for the barrow. Figure 6 is an incomplete end view (handles and wheel omitted) showing the cross bracing. The latter should be constructed of good sized, strong stock. Attention should be given, when assembling the handles, wheel, and box, to insure that the center line of the wheel runs down evenly between the handles; otherwise the barrow will not run true.





Detail of Chinese wheelbarrow construction, from **China at Work**

China at Work, book, 357 pages, R. Hommel, 1937 (reprinted 1969), \$6.45 from MIT Press, Cambridge, Mass. 02142 USA.