

HOW TO

BUILD A BILLY CART

A billycart must be sturdy and easy to steer and brake. This model will stand up to hard knocks and is steered by the feet and hand-ropes.

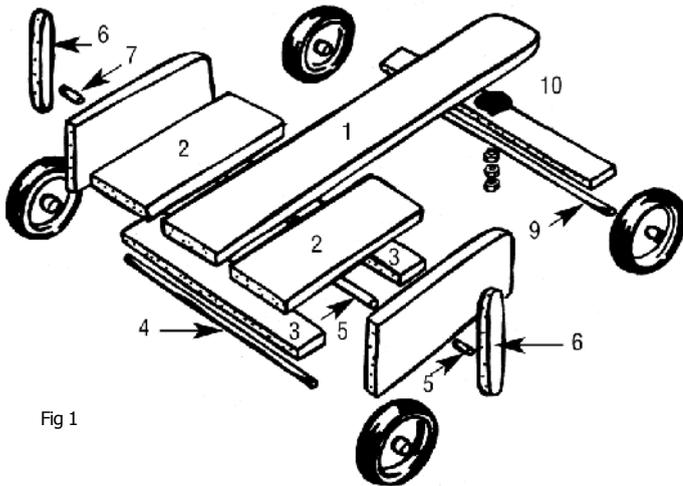


Fig 1

GOOD ADVICE

Regularly check the nuts holding the front axle. A 620mm (243/8") front axle and 570mm (221/2") rear axle are required for the plastic wheels with snap-on hub caps shown in the illustration. The design can be modified to fit other wheel-and-axle sets. If you are going to varnish the billycart, do this after completing each stage of the assembly; but leave the wood bare where glue is to be applied.

TOOLS

- Hand saw or jig saw
- Drill
- Wood glue
- Sharp knife
- Tape measure
- Wood finish

MATERIALS

- 4 solid plastic wheels 160mm (61/4") minimum diameter and snap-on hubcaps
- Eight 12mm washers
- Three 12mm No.6 self-tapping screws
- About 3 dozen 36mm No.8 countersink screws
- 55mm tension spring
- Two 65mm (21/2") mirror plates
- 65x65mm 21/2" x 1/4" round headed bolt
- 2 nuts and washers, four 25mm wire staples
- 1m (39") nylon rope

SAFETY

- Always keep tools and materials away from children.
- Read the instructions before beginning your project.
- Wear an approved dust mask when cutting, planing or sanding timber AS/N251716.

Although every care has been taken to ensure that the information and advice given in this guide is authoritative no legal liability is accepted for such information and advice.



WHERE TO BEGIN

Cut softwood parts [1 and 2] to length (Fig 1). Round off the top front corners of the sides and the front corners of the centreboard with a rasp. Glue and screw the front rail [3] to the seat boards [2], flush at front and sides, using four screws for each board. Glue and screw the rear rail [3] flush at the sides but about 50mm (2") clear of the back. Position at the centreboard [1] between the short seat boards. Glue and screw the rails to the centreboard. Drill the axle hole in each side [2] about 25mm (1") from the bottom, and 75mm (3") from the back edge.

Push the axle in. Rest the chassis on it. Line up the sides flush with the front and rear of the seat. Glue and screw them to the edges of the seat, as shown in Fig 2. Position the rear wheels, using washers. Drill a 12mm (1 1/2") hole in each side, 9mm (3/4") in front of the wheel and 32mm (1 1/4") from the bottom. Drill a similar hole through each brake [6] 32mm from one end. Drill a 4mm (5/32") screw hole at right-angles into this hole. Round off both edges of the brakes and sand all the edges. Push the brake tube [5] through the holes in the sides. Fix on the brakes, fitting washers to keep them in line with the wheels. Push the brakes forward to the on position and drill a 2mm (3/32") hole in the tube, through the holes in the brakes. Secure with a self-tapping screw (Fig 3).

Parts List						
No.	Name	Qty	Long	Wide	Thick	Material
1	Centreboard	1	1000mm	150mm	19mm	Softwood
2	Side/Seat	4	400mm	150mm	19mm	Softwood
3	Rail	2	450mm	75mm	19mm	Hardwood
4	Rear Axle	1	Length and diameter to suit wheel			Steel Rod
5	Brake Tube	1	Length A/R		12mm	Aluminium
6	Brake	2	200mm	25mm	19mm	Hardwood
7	Brake Stop	2	50mm	9mm		Dowel
8	Steering Rail	1	550mm	75mm	19mm	Hardwood
9	Front Axle	1	Length and diameter to suit wheel			Steel Rod
10	Steering Disc	175mm diameter			6mm	Plywood

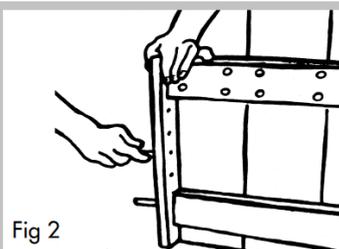


Fig 2

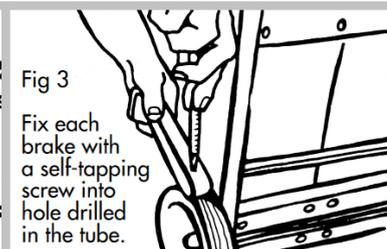


Fig 3

Fix each brake with a self-tapping screw into hole drilled in the tube.



Fig 4

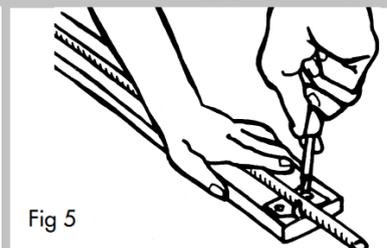


Fig 5

Stretch the spring so that it retains tension when brakes are off.

Make sure front axle rests on the rail, before fixing right-angle brackets.

Turn the cart over and drill a similar hole in the bottom centre of the tube. Anchor one end of the spring here with a self-tapping screw and washer. Stretch the spring 25mm (1") towards the front of the cart, and fix with a screw and washer (Fig 4). Drill holes and glue to the stop dowels [7] in a position to hold the brakes off the wheels. Enlarge the hole in the rounded part of the mirror-plates to make a tight fit for the front axle. Bend each plate with pliers, just below the large hole, to form a right-angled bracket (Fig 4). Attach the brackets into the steering rail [8] flush with the ends and rear edge. Make the cross-grain depth cut first, using a sharp knife, then the depth cut along the grain. Pare from the edge with a chisel until the axle in the brackets touches the rail. Screw the brackets on (Fig 5). Secure the axle with staples in pilot holes.

Drill a hole for the pivot bolt through the centre of the steering disc [10], the centreboard about 75mm (3") from the front and the steering rail about 12mm (1/2") in front of the axle. Fit the bolt with a washer top and bottom, and lock with two nuts. Drill a rope hole near each end of the steering rail in front of the axle. Knot the rope. Fit the wheels.

