

JUNIOR BACKHOE



Half-pint sidewalk superintendents will go ape for this boy-size, rugged, easy-to-build digger.

By C. L. Widdicombe

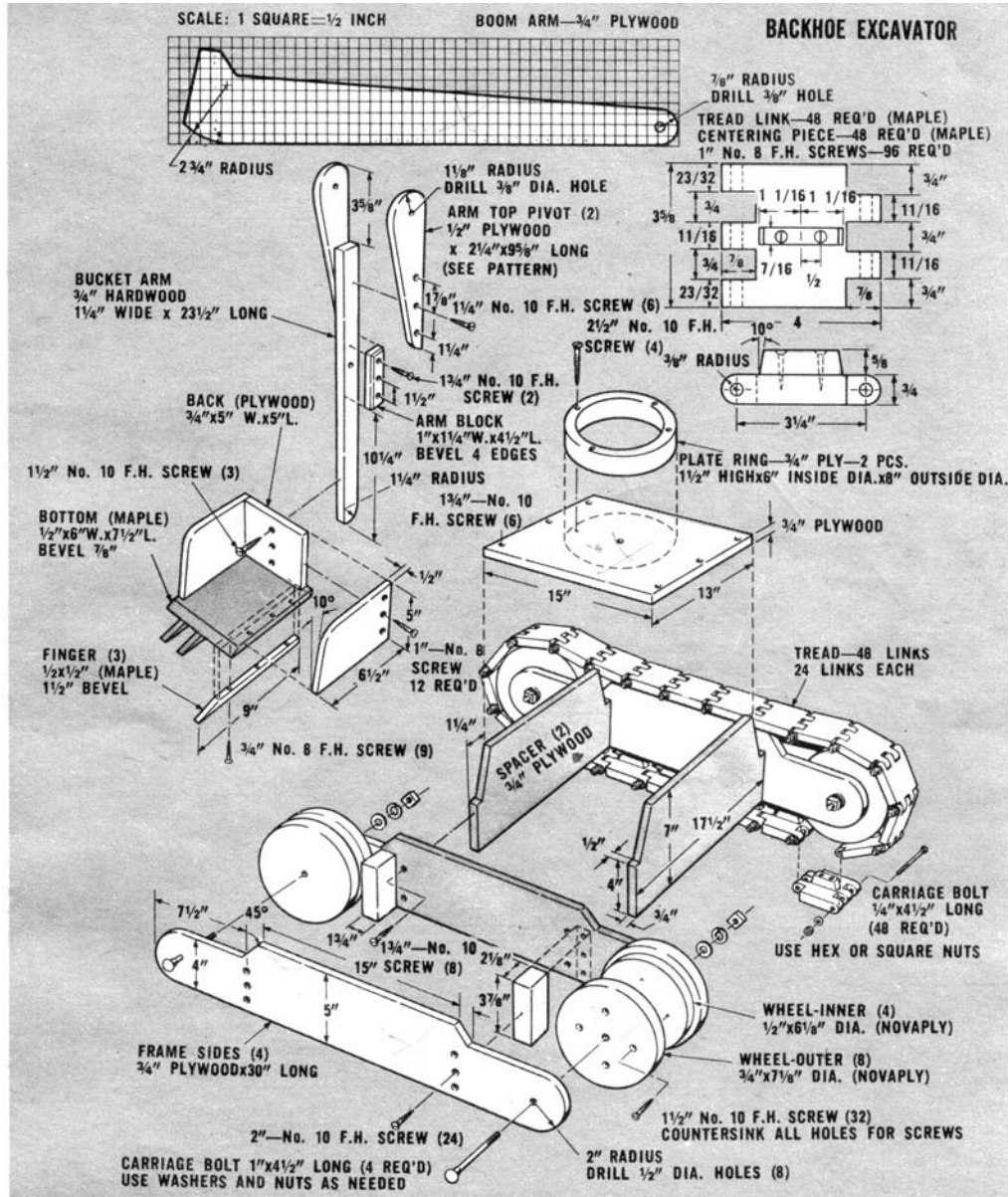
ANY healthy lad can do wonderful things with a little loose dirt but a boy with his own backhoe is an earth-moving hero.

This stout, boy-size toy is rugged—but it *won't* gouge rocks out of a quarry or do much of a job in hard clay. Spaded backyard earth or beach sand are its natural elements.

The scoop can take out enough fill to

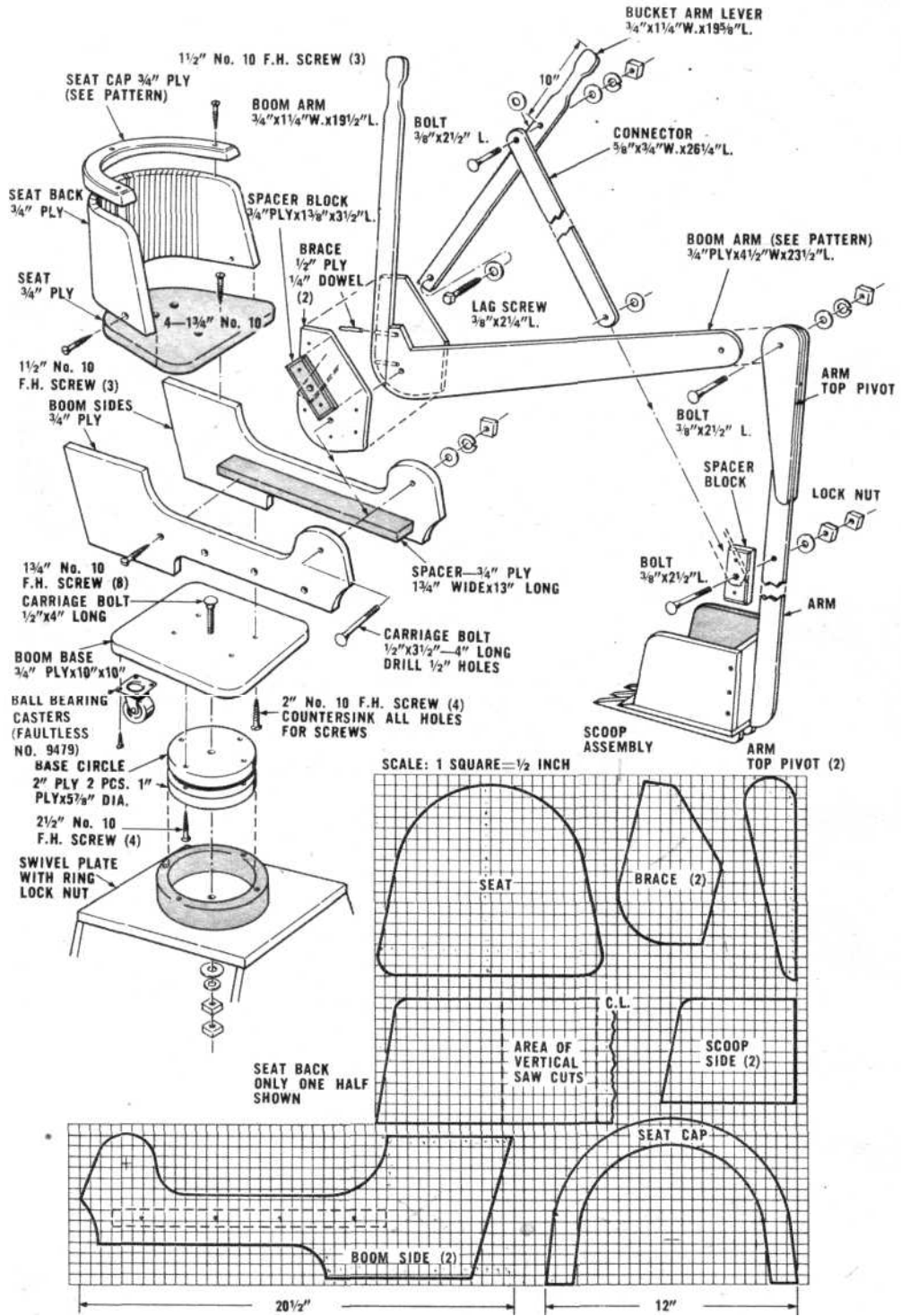
load the average toy truck, and the boom swings in a complete circle. The caterpillar treads rotate freely enough to permit moving the backhoe about. **Begin** with the caterpillar links (see first drawing). These are of maple or any suitable hardwood. The links are notched at either end to form a tongue-and-groove joint. Corner cuts are sawed; surplus material between

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tongues is removed with a dado head. The side view of the link shows a 5/16 inch hole bored through the width at each end. This hole must be exactly the same and perfectly true in each link so it is wise to improvise a jig for the boring operation (no pun intended). The side view of each link also shows a 3/8" radius at each end. To get this, cut the corners at a 45 deg. Angle and

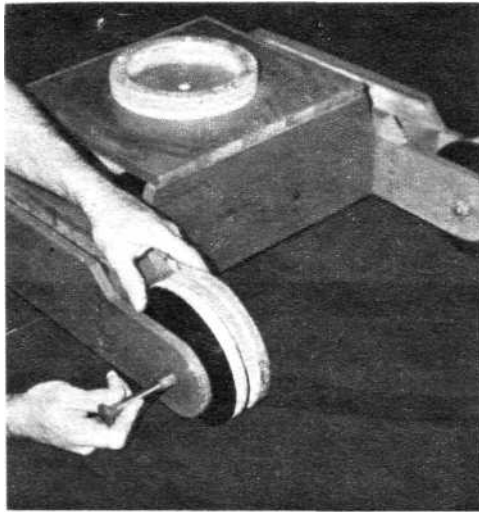
sand off excess material very carefully. Sand edges and corners and apply a liberal coat of clear shellac. Rub down with steel wool when dry and add three coats of black enamel. Assemble the treads with bolts, flat washers, spring Washers and nuts—but don't turn nuts down too tight as this might damage the joints. Wheels. (first drawing). Each wheel



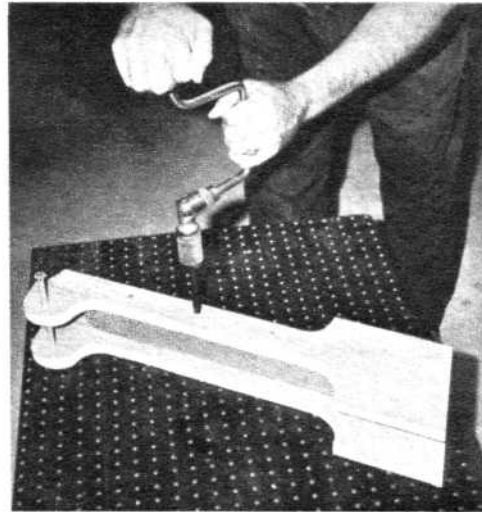
assembly is made of two outer circles of 3/4-in. Novaply or plywood and one center circle of half-in. Novaply or plywood. The outer circles are 7 1/8-in. diameter; the inner circle is 6 1/8-in. diameter. Bore a half-in. hole through the center of each of the 12 wheel pieces. To assemble the wheels, spread glue on the surfaces to be bonded, pass a half-in.

bolt through the holes and clamp. Run in four 1 1/2-inch No. 10 flathead steel screws well countersunk and staggered. Shellac the wheels and enamel them red.

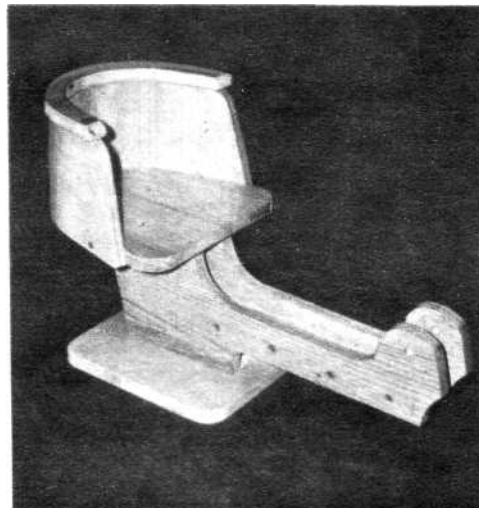
Frame sides. (First drawing.) These are of 3/4-inch plywood. Tack together the pieces from which they are to be made and cut [*Continued on page 128*]



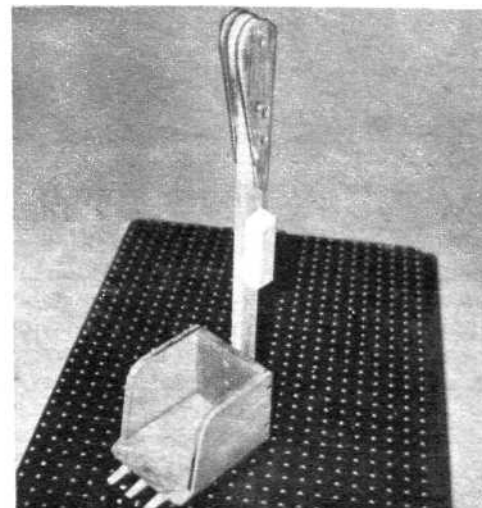
WHEELS are secured with 4 1/2x4 1/2-inch carriage bolts, flat washers, lock washers.



ARMS are sanded, then attached to spacer block. Bolt through pivot hole aligns them.



SEAT and boom assembly as it looks when complete. Seat back is of bent plywood.



SCOOP, assembled. Scoop will not dig in compacted earth—it's for loose earth, sand.

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Junior Backhoe

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them out as a single unit. This must be done twice because you need four of the frame sides (see drawing). Assemble two pairs of frame sides on spacer blocks as shown. Secure the wheels to the frames and mount the tracks on the wheels.

Frame spacers are cut as shown and frame side and track assemblies attached. Make the swivel plate (the platform that rides on the frame spacers) and mount it on spacers. Make a plate ring of two thicknesses of 3/4-inch plywood and mount on swivel plate. Use glue as well as screws to mount ring on plate. Entire frame unit is shellacked and enameled red.

The seat itself and the seat cap need no explanation; the second drawing makes construction of them plain. The seat back is another matter. Cut a piece of straight-grain, solid-core 3/4-inch plywood to the size shown. Bore the three 5/32-inch holes. Round off the corners. Take a sharp, thin plywood saw and make a series of vertical cuts as indicated in the drawing. These should be just deep enough to touch the veneer on the other side of the plywood. Start the cuts a half-in. to either side of the center of the seatback and make them about a quarter-in. apart for 5 1/2 inches to either side. These cuts permit the back to be bent as required. Assemble the seat as shown.

Boom. (Second drawing.) This is made of two pieces of 3/4-in. plywood separated by a spacer block of the same material or of 3/4-in. solid stock. Cut the two boom sides from two pieces temporarily tacked together. While they are together bore the pivot hole and sand out saw marks and rough edges. Separate the two pieces and remove sharp edge on each. Attach them to spacer block with four 1 3/4-in. No. 10 flathead steel screws through *each* side.

Boom base. Cut out as shown in second drawing and attach to boom with four two-in. No. 10 flathead screws.

Make the boom base circle as shown and attach to boom base. Attach four two-in. diameter rubber-wheel casters to the corners of the boom base. Attach seat to boom. Shellac the entire unit and enamel yellow.

Bucket and bucket arm details are shown on the first drawing, along with dimensions of the boom arm. Details of boom-arm lever, bucket-arm lever, connector and manner of assembling these components are shown on the second drawing. Levers should be of hardwood. This entire assembly should be shellacked and varnished, leaving it natural. Use a good spar varnish.

Give the edge of the boom base circle a liberal coat of paste wax, as well as inside of the swivel-plate ring.

Final step: hide in the attic until Christmas. When the day comes, tell the boy it's from Daddy. Let Santa Claus make his own way. •