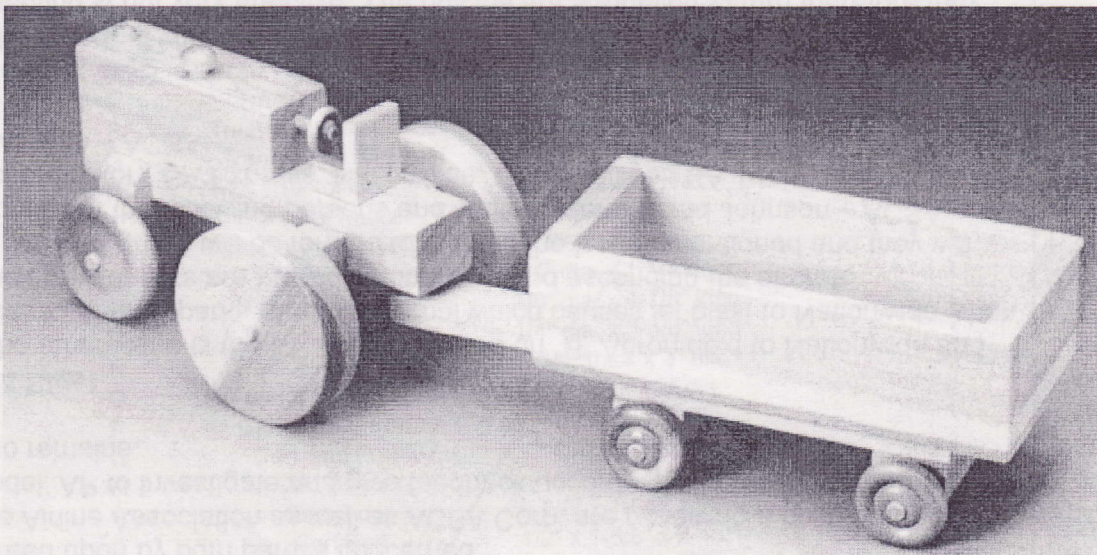


Project 19656EZ: Toy Tractor with Cart

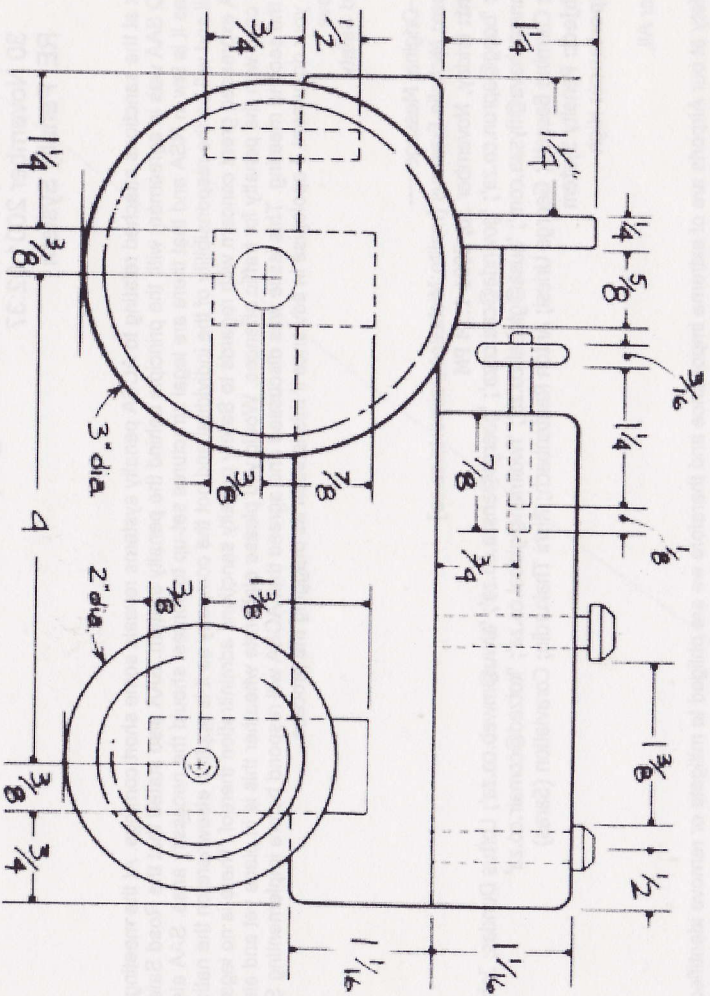
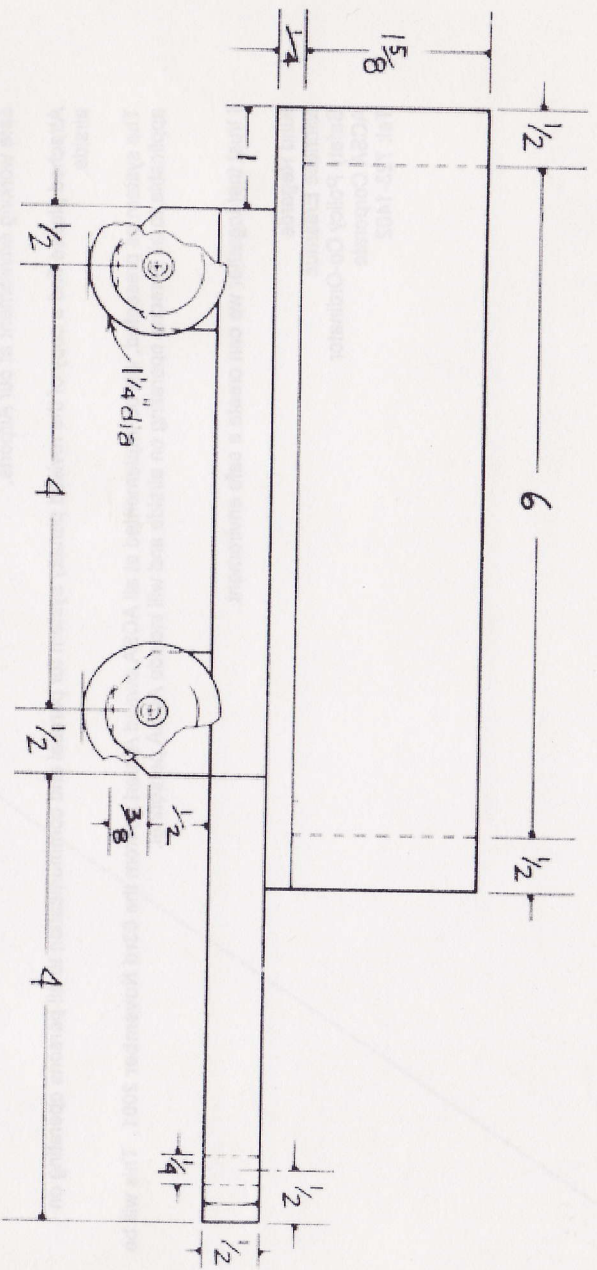


When you consider that many commercially made toys last no longer than a few weeks, it's refreshing to think that a sturdy toy like this is likely to last several generations. Poplar, which is reasonably priced, yet hard enough to stand up to rough service, was used for most parts. The cart bottom (R) is 1/4" mahogany plywood and the front wheels (O) and cart wheels (W) are maple.

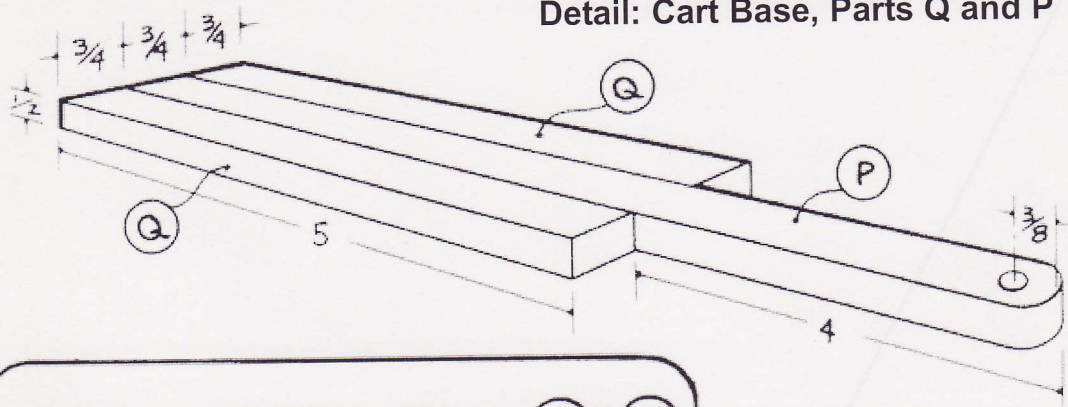
Toy Tractor Materials List

Part	Description	Size	Number Required
A	Tractor Hood	1-1/16" x 1-1/4" x 4"	1
B	Tractor Body	1-1/16" x 1-1/4" x 6-3/4"	1
C	Tractor Rear Axle Support	3/4" x 1-1/4" x 3"	1
D	Tractor Front Axle Support	3/4" x 1-3/4" x 2"	1
E	Tractor Seat Back	1/4" x 1" x 1-1/4"	1
F	Tractor Steering Wheel	3/16" thick x 3/4" dia.	1
G	Tractor Steering Post	3/16" dia. x 1-1/2" long	1
H	Tractor Seat	1/2" x 1" x 5/8"	1
I	Tractor Muffler	See schematic	1
J	Tractor Radiator Cap	See schematic	1
K	Tractor Hitch	1/4" dia. x 1-1/4" long	1
L	Tractor Rear Axle	3/8" dia. x 4-7/8" long	1
M	Tractor Front Axle	1/4" dia. x 3-3/8" long	1
N	Tractor Rear Wheel	3/4" thick x 3" dia.	2
O	Tractor Front Wheel	1/2" thick x 2" dia.	2
P	Cart Center Frame	1/2" x 3/4" x 9"	1
Q	Cart End Frame	1/2" x 3/4" x 5"	2
R	Cart Bottom	1/4" x 3-1/4" x 7"	1
S	Cart Sides	3/8" x 1-5/8" x 7"	2
T	Cart End	1/2" x 1-5/8" x 2-1/2"	2
U	Cart Axle Support	See schematic	2
V	Cart Axle	1/4" dia. x 3-1/2"	2
W	Cart Wheel	3/8" thick x 1-1/4" dia.	4

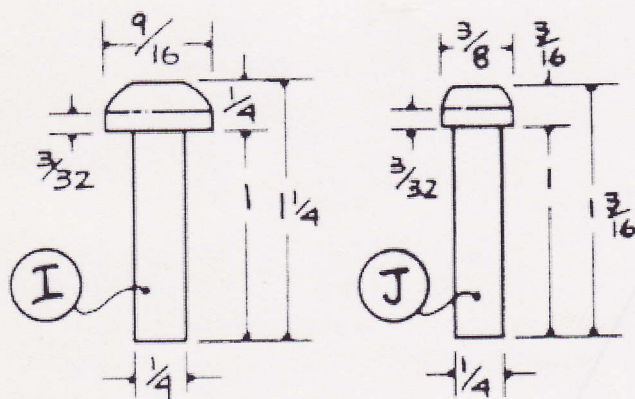
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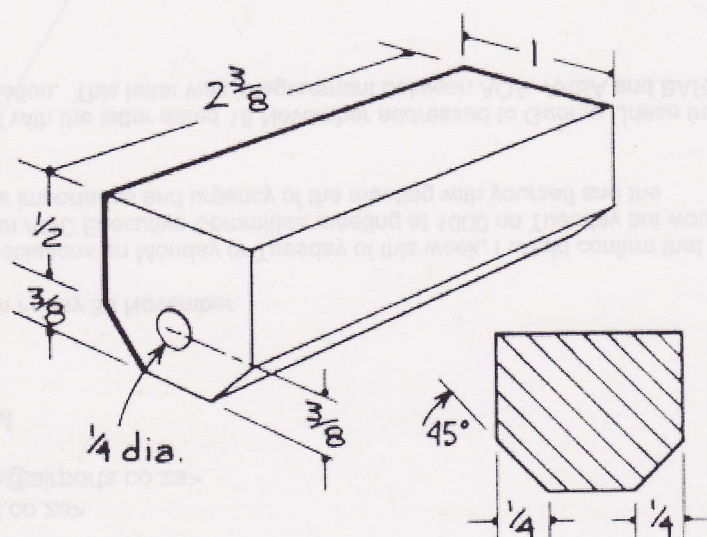
Detail: Cart Base, Parts Q and P



DETAIL: PEGS, PARTS (I) + (J)



DETAIL: CART AXLE
SUPPORTS, PART (U) (2 REQ'D).



Toy Tractor Instructions

Step 1: Make the Hood

1. Choose a piece of five-quarter stock (which actually measures $1\frac{1}{16}$ " thick from which to cut the hood (A).
2. Cut the stock to a width of $1\frac{1}{4}$ " and a length of 4".
3. Mark the location of the holes for the muffler (I) and the radiator cap (J).
4. Use a $\frac{1}{4}$ " dia. drill bit to bore each hole.

Step 2: Make the Body

1. Choose another piece of five-quarter stock (which actually measures $1\frac{1}{16}$ " thick from which to cut the body (B).
2. Cut the stock to a width of $1\frac{1}{4}$ " and a length of $6\frac{3}{4}$ ".
3. Lay out and mark the location of the $\frac{5}{8}$ " deep x $\frac{3}{4}$ " wide dados for parts C and D.
4. Use a table saw equipped with a $\frac{3}{4}$ " dado-head cutter to cut each dado with one pass.

Step 3: Make the Axle Supports

1. Choose a piece of 1" nominal stock which actually measures $\frac{3}{4}$ " thick) to make the front and rear axle supports (parts C and D).
2. Cut the axle supports to the length and width shown.
3. Lay out and mark the location of the axle holes.
4. Use the drill press to drill a $\frac{7}{16}$ " diameter hole through part C.
5. Use the drill press to drill a $\frac{5}{16}$ " diameter hole through part D.

Step 4: Assemble Parts A, B, C, and D

1. Drive a couple of short brads into part B.
2. Clip the brad heads off so that about $\frac{1}{8}$ " is exposed.
3. Use non-toxic glue to glue part A to part B. NOTE: The brads will keep the two parts from sliding when clamped.
4. Use non-toxic glue to add parts C and D to the assembly.
5. Clamp all parts firmly.
6. Allow the assembly to dry overnight.

Step 5: Make the Muffler, Radiator Cap, Steering Wheel, and Seat

1. Use a lathe to turn parts I and J to the dimensions shown.
2. Use non-toxic glue to glue parts I and J in place.

3. Use a 3/4" hole saw to cut the steering wheel (F).
4. Cut parts E and H to the dimensions shown.
5. Use non-toxic glue and two 1/8" dia. dowels to fasten parts E and H together.
6. Cut part G to the dimensions shown.
7. Use non-toxic glue to fasten parts F and G together. **NOTE: DO NOT glue the steering post (G) to the hood. Instead, leave it free to turn as the seat (H) will prevent it from coming out all the way.**
8. Allow all parts to dry overnight.

Step 6: Make the Tractor Wheels

1. Use a lathe to make the rear tractor wheels (N).
2. Use a lathe to make the front tractor wheels (O).

Step 7: Make the Cart

1. Cut the parts for the cart to the dimensions provided in the Materials List.
2. Assemble parts P and Q with non-toxic glue.
3. Clamp parts P and Q together. **NOTE: If necessary, you can use clipped brads to keep the parts in line. Follow the same instructions that were provided in main step 4 to do so.**
4. Assemble parts R, S, and T with non-toxic glue and clamps.
5. Set cart parts P, Q, R, S, and T aside to dry overnight.
6. Assemble cart parts P, Q, R, S, and T.
7. Cut the axle supports (U) to the dimensions.
8. Drill the 5/16" axle hole.
9. Use non-toxic glue and clamps to attach the axle supports (U) to the bottom of the cart.
10. Use a lathe to turn the cart wheels to the dimensions shown.
1. Set aside the cart to dry overnight.

Step 8: Sand, Assemble, and Finish

1. Give all parts a thorough sanding, taking care to round all sharp edges.
2. Final sand using 220 grit sandpaper.
3. Use non-toxic glue to finish assembling the tractor.
4. Allow the glue to dry overnight.
5. Leave all part surfaces unfinished so that they are non-toxic.

These plans were originally published in Volume 7, Issue 4 of *The Woodworker's Journal* (July/Aug. 1983, pages 44-46).