

# Making Wooden Toys

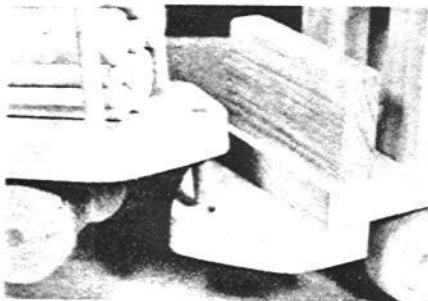
A toy should be designed and built for safety, durability, and playability. Wood, as the raw material for toys, is safe, durable, and wonderfully playable — if properly used. Below are some tips and hints you will want to consider before you set out to build wooden toys.

## Safety

Most of the common hardwoods and softwoods — oak, maple, poplar, spruce, pine — are safe in the hands (and mouths) of children. Pine even contains trace amounts of Vitamin C. Commercial plywood, however, is not safe. The thin laminations tend to chip and splinter. If you want the strength that plywood offers, make your own out of 1/8" or thicker stock and take care to get a strong, even glue bond.

Sand all toy surfaces smooth with 80# or finer sandpaper to further guard against splinters. Round corners and edges with a rasp to get rid of sharp angles. Because wooden toys have so many intricate surfaces, you'll find it easier to sand the pieces before you assemble them.

Avoid parts that might scrape, scratch, or pinch. Metal hinges, hooks, and nails can all be replaced by dowel pins. Wooden toys, after all, should be made of wood.



With a little ingenuity, metal parts can be replaced by wood. On our train, we have substituted pegs and holes for hooks and eyes.

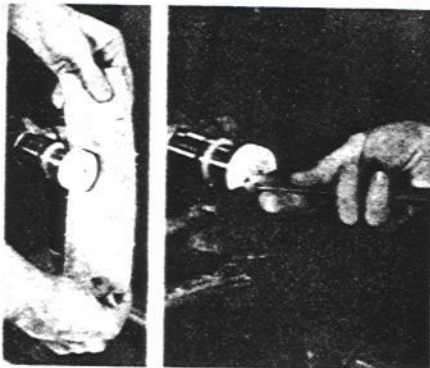
Commercial finishes — paints, stains, varnishes — are toxic and should be avoided. If you want color, a solution of one part food dye to three parts water can be applied like oil stain. If you want to enjoy the natural beauty of the wood, coat the toy with vegetable oil and rub it in with #0 steel wool.

## Durability

Wood is an incredibly durable material — but children will, of course, test that durability. Still, wooden toys can last for generations if properly reinforced to survive a few careless owners.

The moving parts of a toy receive the most abuse. Axles and hinge pins should be made from hardwoods — the harder the better. Commercial dowels are normally turned from ash, beech, or oak, and will wear a long time. Rub paraffin on axles and pivots before assembly to help them operate smoothly.

Wheels also receive a lot of punishment and should be made from hardwoods. If you use softwood, resaw the wheel stock in half and laminate the sections back together with the wood grains running perpendicular to each other. Wheels wear longer if they are perfectly round. A quick, easy way to make perfectly round wheels is to cut them with a holesaw and sand them on a lathe or drillpress.



Sand your wheels on a lathe, mounting them on a 3/8" peg gripped in a chuck. Then, if you want, put a decorative groove in the side with a skew chisel.

When assembling the toy, join the parts with a resin glue and reinforce the joints with dowels or wood screws. Screws are sharp and made of metal, we know, but we recommend them because of their superior holding power. Use #10 x 1-1/4" flathead screws in 3/4" wood. Countersink them 1/4" and cover the heads with a short length of 3/8" dowel. This will get the metal screws

out of harm's way and give the same appearance as a dowel. If you're a purist and want to use real dowels, cut flutes in them to make a stronger glue bond.

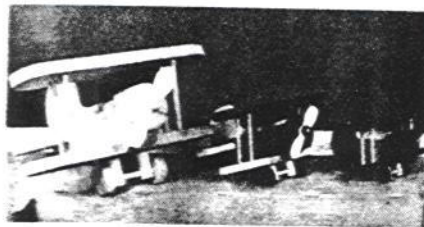
## Playability

Toys should be safe; toys should be durable; but above all they should excite the imagination and invite play.

The design should be interesting. We chose to pattern our wooden train after a classic steam engine because the design is more pleasing to the childish eye. The diesel is austere and dull, whereas the lines of the steam engine tell of the cows on the track, the billowing smoke, the power and the adventure of the railroad.

The design should also be simple. Toys should be detailed enough to represent their real-life models — but not too detailed. Simplicity gives a wider range to the imagination.

Size is as important as design. Toys should be small — smallness is part of their fascination for the child. The toys on the following pages are all 12" to 24" in length and can be made from readily available 3/4" stock. However, you might want to scale these down, depending on the age of the child who will play with them. By using 1/2" or 3/8" stock, you can build these toys two-thirds or one-half the size we show, still using the same patterns.



These three airplanes were all made from the same patterns using different thicknesses of stock — 3/4", 1/2", and 3/8". This gave us wingspans of 14", 9-1/4", and 7", respectively.

As you build, remember that all toy-making is a collaboration between children and adults. The best you can do by your adult self is make a fancy wooden object. It takes a child to make it truly a toy.