

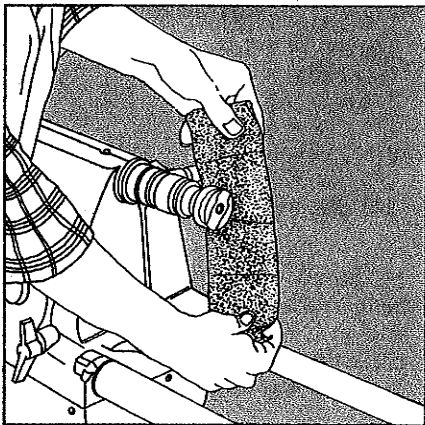
# FIRE ENGINE

From *HANDS ON* Nov/Dec 79

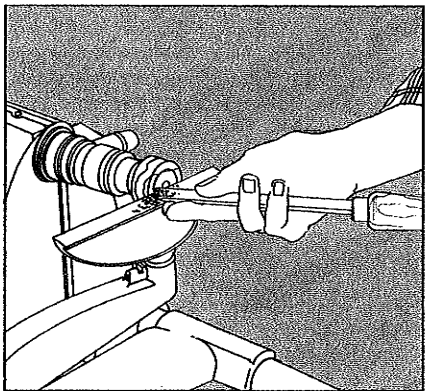
There must be a few things more exciting to a child than a fire engine, but we can't think of any. We chose to build the most exciting of fire engines: the hook and ladder.

1. Cut all pieces to size and shape, except ladder rails, according to the List of Materials.

A quick, easy way to make perfectly round wheels is with a hole saw and then sanding them smooth on a lathe or drill press. Then, if you want, put a decorative groove in the side of each wheel on a lathe with a skew chisel.

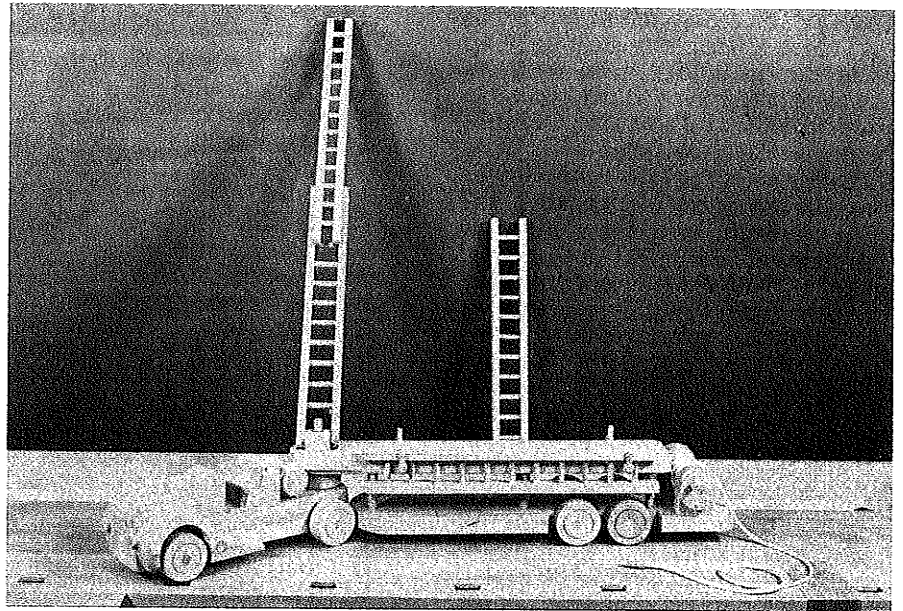


Sand wheels smooth on a lathe.



Cut decorative groove in side of wheel on a lathe.

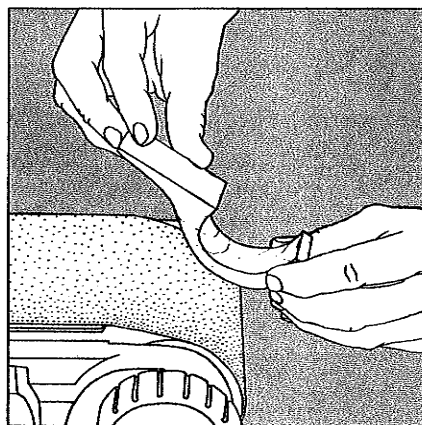
2. Drill holes as shown on patterns, except the truck bodies and ladders. Also, drill  $3/8$ " holes in the center of the wheels (D), a  $1/4$ " hole through the center of the reel



crank (W), and a second  $1/4$ " hole in the reel crank,  $3/8$ " in from the edge.

3. Glue the truck bodies (A) and drill holes as shown on patterns.

4. Insert the two axles (E) in the truck body axle holes and glue on wheels (D). Position the fenders so that the wheels don't rub in the wells and glue in place. If you wish, round the fenders with a rasp or sander. Also, round the back corners of the truck assembly as shown in the truck body exploded view. Reinforce the fender glue joints with dowels or screws.



Round fenders with a belt sander.

5. Drill two  $1/2$ " holes in the front of the truck assembly, with the centers  $3/4$ " in from the outside edge of the fenders and  $1-3/8$ " up from the bottom edge. Insert headlights (F) and glue in place.

6. Sand a  $3/4$ " flat spot on the water tank (C) and glue in place in back of truck seat. Reinforce the glue joint with a dowel pin.

7. Glue the six platform supports (J) into the  $3/8$ " holes in the lower platform (G). Then, glue the supports in the corresponding holes in the upper platform (H). The rounded ends of the platforms should face the same direction and be  $1-1/2$ " apart.

8. The telescoping ladder slides together by means of a  $5/32$ " groove that runs the length of the telescoping ladder rails (Q). It's easiest to cut this groove with an ordinary saw blade before you rip the ladder rail from the wood stock. The groove should be  $5/32$ " deep and  $1/8$ " from the edge of the rails.

Drill holes on the pivoting and sliding ladders. Skip a hole at one end of the two pivoting ladder rails (Q) that will attach to the pivot block (L).

9. Assemble pivoting ladder and attach to pivot block (L). Assemble sliding ladder and slide into pivoting ladder.

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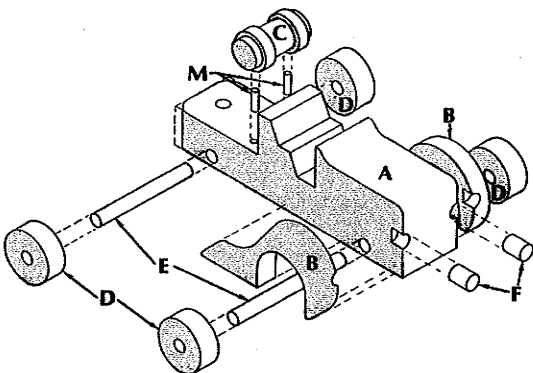
# FIRE ENGINE (CONT'D)

10. Attach a peg (M) in groove to pivoting ladder as a stop to keep the sliding ladder from scraping against the pivot block (L). Rip other ladder rails to size and drill rung holes; then, assemble.

11. Glue a wheel (D) to the lower side of the upper platform (H), lining up the hole in the wheel with the forward hole in the platform. Drill a 1/4" hole 1/4" from the end of the coupler (K). Glue a peg (M) in this hole, so that 3/16" of the peg protrudes on each side. Pass the coupler through the 7/16" hole in the pivot block (L) and insert the forward hole in the upper platform (H). When glued in place, coupler should extend 3/4" below the platform and wheel, and still allow the pivot block and telescoping ladder assembly to turn freely. The peg in the ladder will serve as a keeper for the ladder assembly.

12. Glue the ladder hooks (S) in the 3/8" x 1/2" deep holes in the edge of the upper platform (H). Glue pegs (M) into the holes, with 3/8" of the pegs protruding above the hooks. Hang assembled ladders on hooks.

13. Assemble the hose reel (T), reel supports (U), reel pivot (V), and reel crank (W) as shown in ex-



## LIST OF MATERIALS

(finished dimensions in inches)

A	Truck bodies (3)	3/4 x 3 x 9-3/4
B	Fenders (2)	3/4 x 2-1/4 x 5-1/4
C	Water tank	1-1/4 dia. x 2-1/4
D	Wheels (9)	1-3/4 dia. x 3/4
E	Axles (4)	3/8 dia. x 3-7/8
F	Headlights (2)	1/2 dia. x 3/4
G	Lower platform	3/4 x 3-3/4 x 15-1/2
H	Upper platform	3/4 x 2-1/4 x 15-1/2
J	Platform supports (6)	3/8 dia. x 3
K	Coupler	3/8 dia. x 3-1/2
L	Pivot block	3/4 x 3/4 x 1
M	Pegs (9)	1/4 dia. x 3/4
N	Ladder rails (4)	1/4 x 3/4 x 12
P	Ladder rungs (33)	1/4 dia. x 1-3/4
Q	Telescoping ladder rails (4)	1/4 x 3/4 x 13
R	Telescoping ladder rungs (12)	1/4 dia. x 1-1/2
S	Ladder hooks (4)	3/8 dia. x 1-1/2
T	Hose reel	1-1/2 dia. x 2-1/8
U	Reel supports (2)	3/4 x 1-1/2 x 2
V	Reel pivot	1/4 dia. x 4-1/8
W	Reel crank	1-1/2 dia. x 3/8
X	Hose	1/4 dia. x 48 nylon rope
Y	Nozzle	3/8 dia. x 1

ploded view. Glue hose assembly on lower platform (G).

14. Pass axles (E) through 7/16" axle holes in lower platform (G) and glue on wheels (D).

15. Hook the coupler (K) into the hole in the back of the truck body, and you have a hook and ladder capable of rescuing people from burning buildings almost 2' high.

