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**P**RAM type boats are not new, but this version of the type is. It has all the latest wrinkles: adaptability to plywood construction, easy fabrication, and a convex bottom with non-trip chines affording maneuverability at any speed *Screwball* will ordinarily be driven.

Start construction by making building form (Fig. 3). Mount upon legs similar to a sawhorse at a convenient working height, say 38 to 40 in. Don't notch form for frames or cut to shape for stem yet, however; this will come later.

Draw full-size patterns on heavy wrapping paper of all the pieces shown in Fig. 3, being sure to include all curves shown. Frames #2, 3, 4 and 5 are laid out at bottom edges as true arcs. To draw these arcs, mark on your pattern paper the points at the ends and exact center of the frame to be made. Place paper on a flat wood surface that can be nailed into, and partially drive a finishing nail into each end point. Then lay two  $\frac{1}{2}$  x  $1\frac{1}{4}$  in. battens on the pattern so that they touch the finishing nails and overlap at the pattern's center point. Fasten together the overlapping ends with screws or finishing nails, hold a pencil at the center or vortex of the angle thus formed, rotate the battens from one nail to the other and the pencil will scribe a true arc of a circle. Use the template shown in Fig. 3 to obtain the roll at the outside bottom edges of frames #4 and 5.

Now, with a toothed wheel similar to a dressmaker's wheel or with a prick punch, transfer outlines of each piece to lumber. Be sure to include extensions. Saw out the pieces and smooth the edges with a block plane. Rough lumber may be used for frame #1 as this is only a mold frame and is removed after the hull is planked.

Unconventional in appearance, *Screwball* is fast and maneuverable and carries a third more passengers or gear than comparable boats of conventional design. That scow-type bow offers another advantage besides more stowage—because of it, *Screwball* can readily be beached anywhere and passengers can step ashore dry shod.

### Craft Print Project No. 269

#### STATEMENT OF USES

**USES:** Scow pram utility boat with great seaworthiness and load-carrying capacity and easy beaching qualities. Can conveniently be transported on auto top carriers.

**TYPE:** Planing adaptation of pram type.

**LENGTH:** 11 ft. 5 in.

**BEAM:** 55 in.

**WEIGHT:** 175 lbs.

**SEATING CAPACITY:** Five passengers—with three passengers safe upon any waters.

**POWER:** 10-12 hp Evinrude, Mercury, Johnson.

**CONSTRUCTION:** Plywood over stressed frames; one mold frame (removable).

**REMARKS:** Safety feature of convex bottom design with non-trip chines faired into chine sections aft at transom developed by William D. Jackson exclusively for Science and Mechanics.

Using the patterns again, saw plywood backing for stem #0 and transom #5, coat all contacting surfaces with glue (*Weldwood* or *Elmer's Waterproof*) and nail to framing with 1-in. annular-grooved nails spaced 2 in. apart. If these nails are unavailable, use #7 x 1 in. jh screws spaced 3 in. apart. Lay these frames aside to allow glue to dry and, using glue at each joint to insure rigidity—bolt together the sides and bot-

toms of the remaining frames with two  $\frac{1}{16}$  x 2 in. rh stove bolts at each joint, washers each side.

Next cut transom, stem, beam and seat riser knees to shape (Figs. 4 and 5). Place the stem knee on the building form in the position indicated (Fig. 2) and mark and saw form to receive it. Then notch frames for keel, chines and sheer

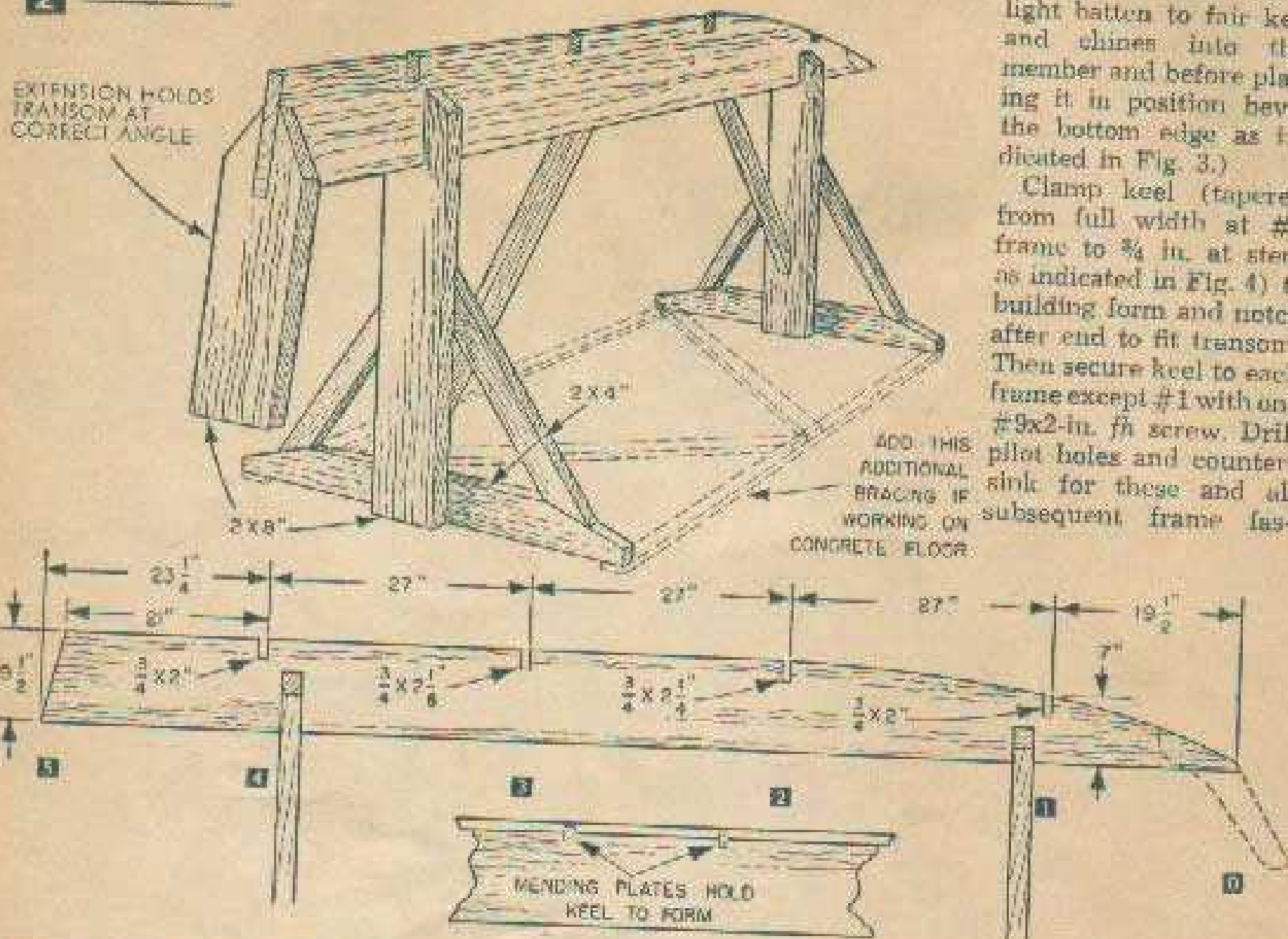
clamps, leaving notches in frames #1 to 5 slightly under-size so that when the keel and chines are in position you can run the blade of the saw between these members to correct the angle of saw-cut edge and insure a perfect fit.

Notch form for the frames and insert them upside down at their respective stations. (The most

difficult part of building Screwball is the installation of #0 stem. Use a light batten to fair keel and chines into this member and before placing it in position bevel the bottom edge as indicated in Fig. 3.)

Clamp keel (tapered from full width at #2 frame to  $\frac{3}{4}$  in. at stem as indicated in Fig. 4) to building form and notch after end to fit transom. Then secure keel to each frame except #1 with one #9x2-in. fh screw. Drill pilot holes and counter-sink for these and all subsequent frame fas-

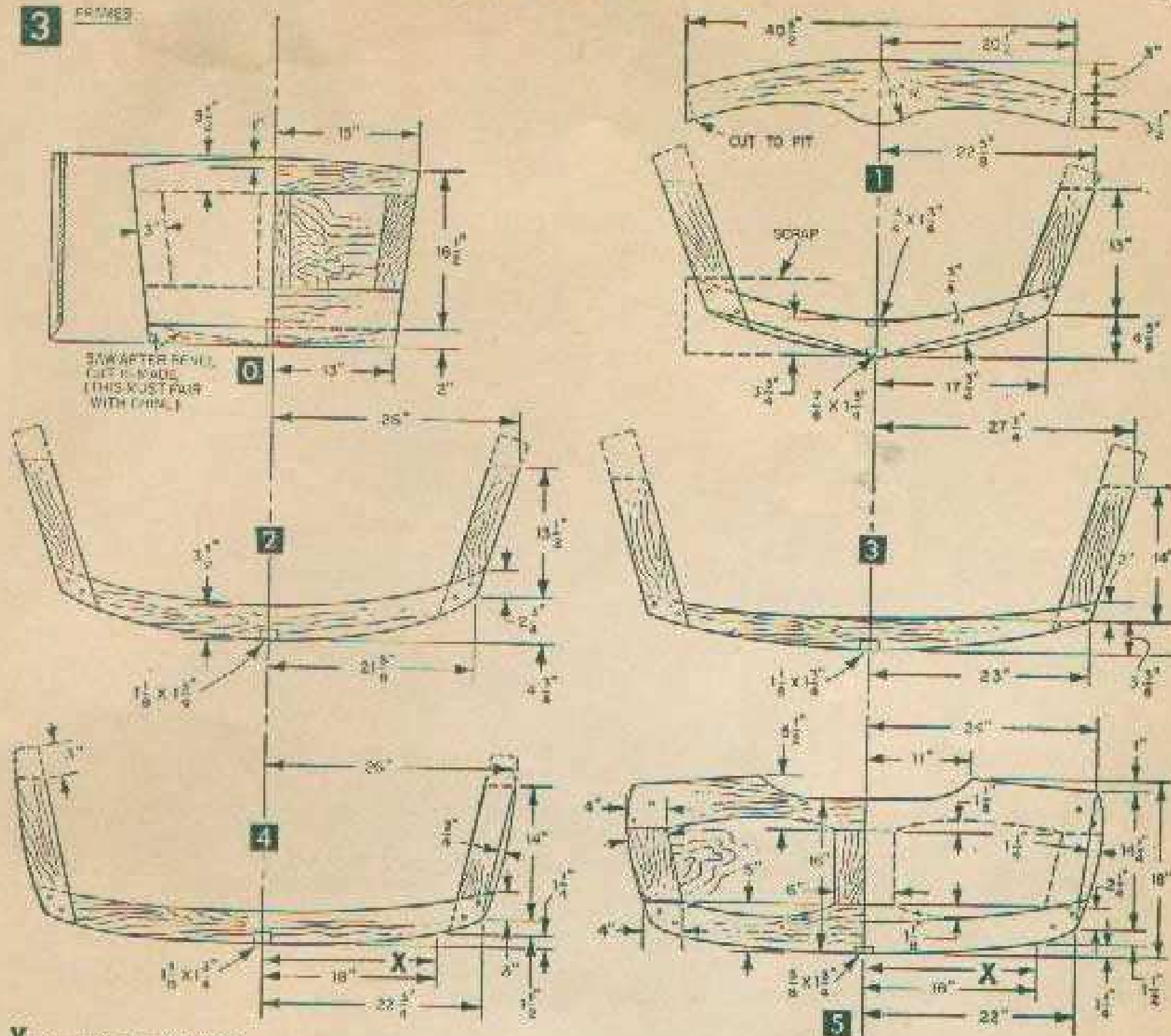
**2 BUILDING FORM**



**MATERIALS LIST—SCREWBALL**

No.	Size and Description	Use	No.	Size and Description	Use
3 pcs	$\frac{1}{4}$ " x 4 x 8' fir	plywood (fir exterior grade AA or AB—B side, inside)	1	$\frac{3}{4}$ x 1 $\frac{1}{2}$ " x 6'-2"	outside keel
1 pc	$\frac{3}{8}$ x 18 x 50' fir	stern and bottom	4 pcs	1 x 4" x 8'	stern
1 pc	$\frac{3}{8}$ x 20 x 30' fir	stem	1 pc	$\frac{3}{4}$ x 7 $\frac{1}{2}$ x 48"	beam #1
1 pc	$\frac{3}{8}$ x 35 x 48' fir (AA)	transom	1 pc	2 x 4 x 30"	low hand hold
1 pc	$\frac{3}{8}$ x 12 x 30' fir	decking	1 pc	1 x 4" x 12"	bilge battens
2 pcs	$\frac{3}{8}$ x 2 x 24' fir	seat benches	4 pcs	$\frac{3}{4}$ x 2 x 10"	fore bottom batten blocks
2 pcs	$\frac{3}{8}$ x 2 x 30' fir	floor #1	1 pc	1 $\frac{1}{2}$ x 8 x 40"	sheer and keel transom knees;
2 pcs	$\frac{3}{8}$ x 2 x 34' fir	floor #2	1 pc	$\frac{3}{4}$ x 7 $\frac{1}{2}$ x 18"	stem knee
1 pc	$\frac{3}{8}$ x 2 x 30' (makes two)	floor #3	2 pcs	$\frac{3}{4}$ x 2 $\frac{1}{4}$ x 34"	beam and seat riser knees
1 pc	plywood	side batten			sheer blocks
1 pc	plywood	side batten			
1 pc	1 x 5 x 30'	stem	1 gross	#7—1" fh screws	FASTENINGS
1 pc	1 x 4 x 30'	stem	4 gross	#7—2 $\frac{1}{2}$ " fh screws	
1 pc	1 x 3 x 36'	stem	1 piece	or 2 lb. 1" Herter's galvanized boat nails	
1 pc	1 x 8" x 6'	#1 mold frame	18	#9—1 $\frac{3}{4}$ " fh screws (2#8 screws may be used)	
1 pc	1 x 8" x 6'	#2 frame	18	#8—2" fh screws	
1 pc	1 x 6" x 8'	#3 frame	12	#9—1 $\frac{1}{2}$ " fh screws	
1 pc	1 x 6" x 8'	#4 frame	2	#9—2 $\frac{1}{2}$ " fh screws	
1 pc	1 x 6" x 14'	#5 frame	2	$\frac{1}{2}$ x 2 $\frac{1}{2}$ " carriage bolts	
2 pcs	$\frac{3}{4}$ x 1 $\frac{1}{2}$ " x 12'	chines	1	$\frac{1}{2}$ x 4 $\frac{1}{2}$ " carriage bolt	
2 pcs	$\frac{3}{4}$ x 1 $\frac{1}{4}$ " x 12'	sheer clamps	2	$\frac{1}{2}$ x 4" carriage bolts	
2 pcs	$\frac{3}{4}$ x 1 $\frac{1}{4}$ " x 10'	carlins	12	$\frac{1}{4}$ x 2" rh stove bolts, 2 washers each bolt	
2 pcs	$\frac{3}{4}$ x 1 $\frac{1}{4}$ " x 10'	seat risers		2 lb. Weldwood or Elmer's glue; 1 gal. Finishing 3 $\frac{1}{2}$ gal. sand (and/or varnish as desired)	
1 pc	1 $\frac{1}{2}$ x 18 $\frac{1}{2}$ " x 12'	keel	1 pc	aluminum lifting handles	

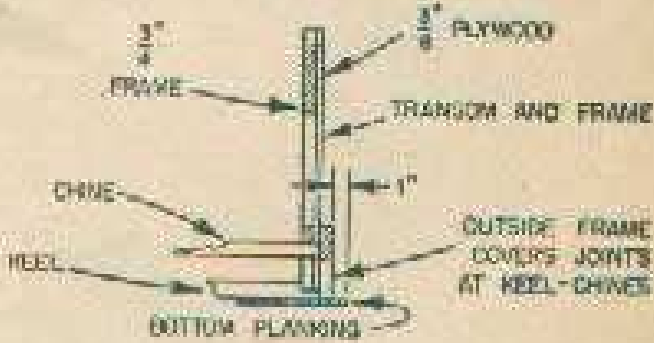
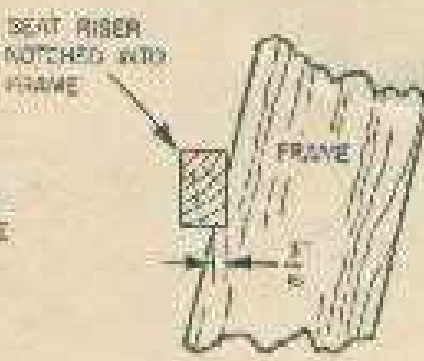
**3** FRAMES



X TRUE ARC FOR REMAINDER OF CURVE, USE PLYWOOD



TERMINATE 1/8" HULL AT OUTSIDE BATTEN EDGES OF FRAMES #4 AND 5



tenings. Force keel past #1 mold frame down to stem, mark and cut for beveled notch-fit to stem and screwfasten. Then screwfasten keel and stem to stem knee with four #9 x 2-in. fh screws, two screws to keel, two through the stem. Align and square stem and transom to the building form, holding in position with battens temporarily nailed through these members.

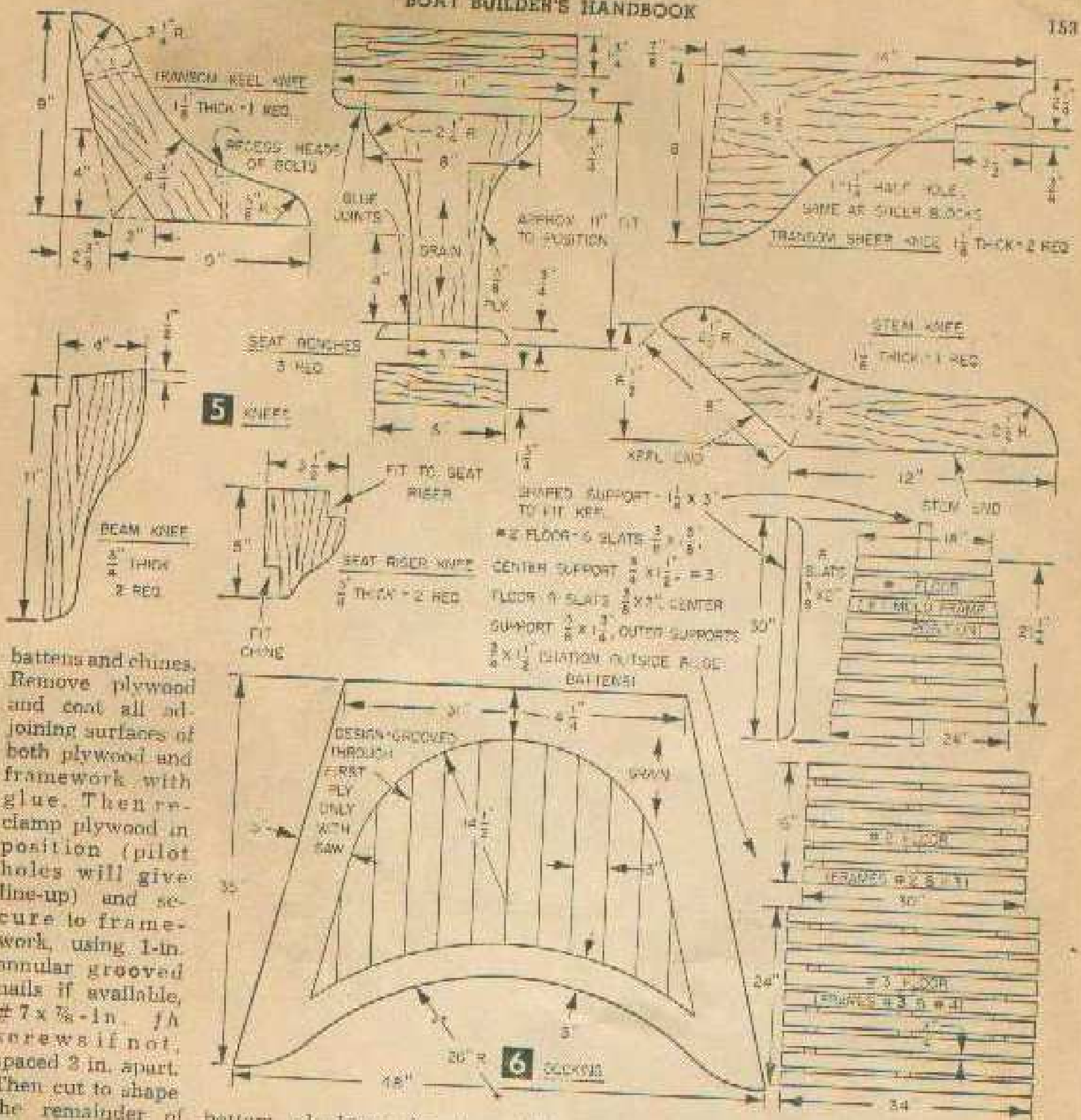
Next, spring the chines into position, placing both chines simultaneously to prevent wringing framework out of shape; run saw blade between chine and notch for perfect fit. Now is also the time to make the chine notch in the stem—a long, beveled notch—by bending the chine down to the stem and sawing out notch little by little.

Screwfasten chines at each notch with one #9 x 1 3/4-in. fh screw. Trim chine ends even with transom and stem and position sheer clamps, fastening with one #9 x 1 3/4-in. fh screw at every joint.

The bilge battens are cut as shown in Fig. 4. Position them on each side, wide ends aft, midway between edge of keel and edge of chine; notch flush and fasten to frames with one #9 x 1 3/4-in. fh screw at each joint. Trim protruding ends of battens and install the transom frame. Coat contacting areas with caulking compound and screwfasten frame to transom with #9 x 2-in. fh screws spaced 3 in. apart.

Before applying the planking, fair the frame-





battens and chimes. Remove plywood and coat all adjoining surfaces of both plywood and framework with glue. Then re-clamp plywood in position (pilot holes will give line-up) and secure to framework, using 1-in. annular grooved nails if available, #7 x 3/4-in. f/s screws if not, spaced 3 in. apart. Then cut to shape

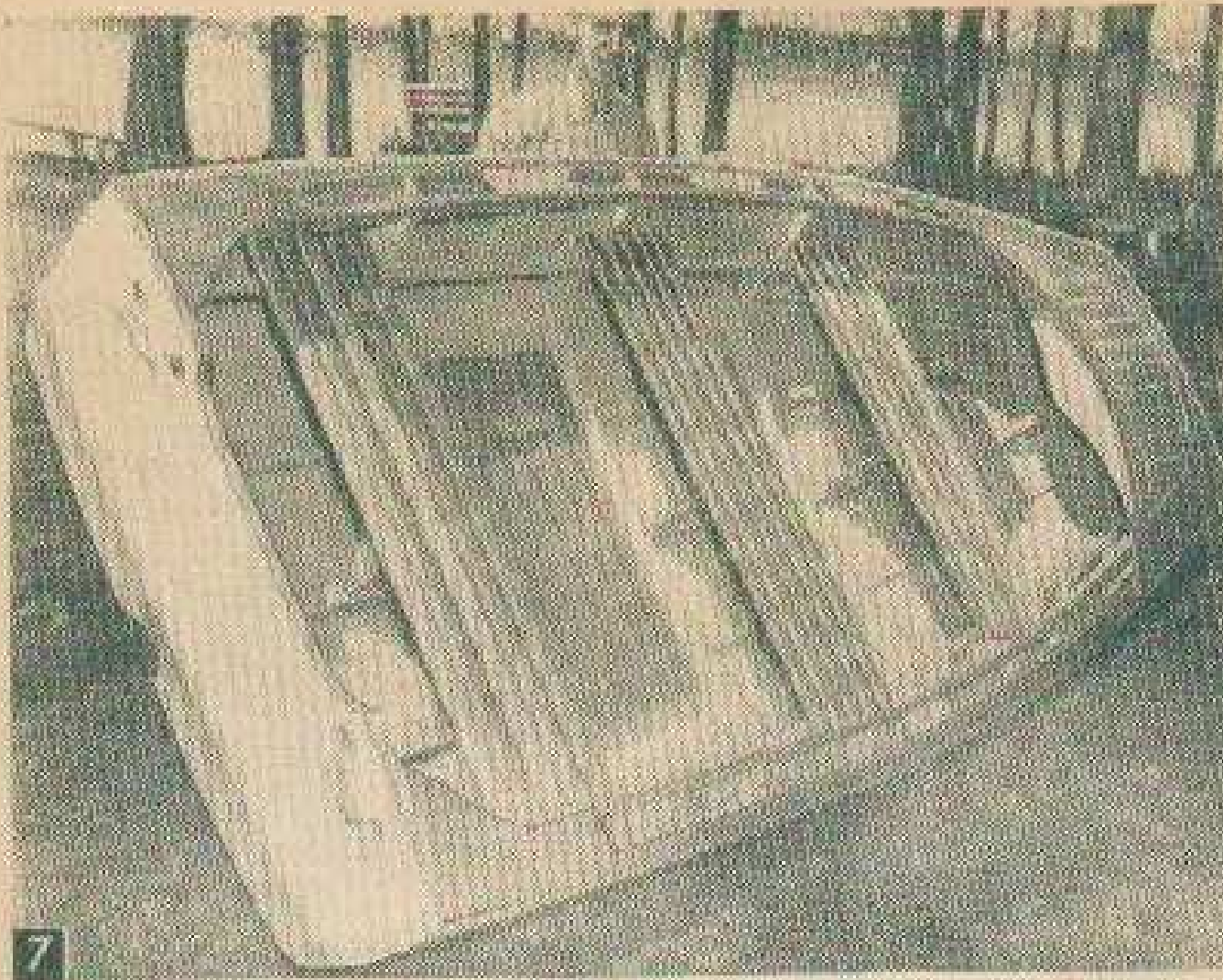
the remainder of bottom planking the two pieces of plywood forward (Fig. 6). The joint between the fore and aft planking is secured with 3/4 x 2 in. blocks or battens placed between keel, bilge battens and chimes, glue-coated and nailed or screwfastened. When glue is dry, trim the bottom flush along the chimes and stem.

To plank the sides, clamp 1/4-in. plywood to framework and mark and saw to shape. The joints to the 8 ft. lengths come aft on the sides (Fig. 3), with a 3/4 x 2-in. butt batten glued and nailed or screwfastened at the joints. Trim this side planking evenly, remove planked hull from form and turn it right-side-up. Remove #1 mold frame and install beam #1 (Fig. 3) to hold shape of hull. Bolt beam to beam knees (screwfastened with two #8 x 1 1/2 in. f/s screws through plywood to each knee) with two 1/2 x 3-in. f/s stove bolts at each joint, washers each side. Notch a 3/4 x

1 1/2 x 25-in. deck batten flush into beam and stem, coating with glue before nailing.

Now cut transom sheer and transom keel knees (Fig. 5) to shape. Bolt keel knee in place with 3/4 x 4 in. carriage bolts; screwfasten sheer knees with four #9 x 3 1/4-in. f/s screws to each knee. Cut and install carlins, spacing sheer blocks as shown in Fig. 4 and screwfastening with four #9 x 1 1/2-in. f/s screws (or #8) to a block, two through carlin, two through sheer clamp at each block. Attach seat risers with one #9 x 1 1/4-in. f/s screw at each joint and at riser knees (screwfastened from plywood with two #8 x 1 1/2-in. f/s screws).

Cut decking to shape and design shown in Fig. 6, coat contacting surfaces with glue and fasten as with planking. Cut sheer moldings and screwfasten with #8 x 1 1/2 in. f/s screws spaced at 8-in. intervals and cut bow hand hold to shape and fasten with a 1/4 x 2 1/2-in. carriage bolt at each



keel with two #8 x 1 1/4-in. fh screws to a floor, a washer under head of each screw, permitting ready removal when hull interior is cleaned.

Complete construction of Screwball by screwfastening outside keel in place with #8 x 1 1/4-in. fh screws spaced at 8-in. intervals. The outside keel protects the bottom of the hull from damage by scuffing and also acts as a fin to prevent sliding on turns.

Your boat is now ready for painting. Cost the entire interior and exterior of the hull with Firzite and follow with three coats of paint in the color or colors and color scheme you desire. Fasten aluminum handles to transom and Screwball is sea-ready.

7 The original Screwball has varnished railings and decking, a light and dark tan interior, and a white hull with red below water line and on to prow.

end, one 1/4 x 4 1/2-in. carriage bolt at center.

Seats for Screwball are simply 3/4 x 1 3/4-in. slats 4 ft. long (4 ft. of 1 x 4 cut down the center will make two of these slats), five to a seat with 3/4-in. separation between each. Amidships, slats are supported by seat benches (Fig. 5). Screwfasten to benches and risers with one #8 x 1 1/4-in. fh screw at each joint. Floor-board slatting (Fig. 6) is nailed together with 1-in. annular grooved nails or galvanized shingle nails and screwfastened to

■ Craft Print No. 267, in enlarged size for building Screwball, is available at \$1.50. SPECIAL QUANTITY DISCOUNT! If you order two or more craft prints (this or any other print), you may deduct 25¢ from the regular price of each print. Hence, for two prints, deduct 50¢; three prints, deduct 75¢, etc. Order by print number, enclosing remittance (no C.O.D.'s or stamps) from Craft Print Dept., 237, South La Salle and Mechanics, 350 East Ohio Street, Chicago 11, Illinois. See coupon on page 157. Now available, our new illustrated catalog of "195 Do-It-Yourself Plans," 26¢. Allow four weeks for delivery.

