

"BUDDY"

A 13-Foot Utility Boat

Craft Print Project No. 104

USES: You can row, sail, or run this boat with an outboard motor from 1 to 12 hp. It rows easily due to an improved semi-vee-bottom, and sails closely. It contains all qualities usually found in three or more boats. It is made of "Weldwood"—resin-bonded marine plywood, for easy and inexpensive construction, is permanently waterproof, and is ideally adapted to open or smooth waters. It is seaworthy, stable, and widely adaptable.

LENGTH13 ft.
 BEAM.....4 ft. 8 in.
 DEPTH.....20 in. amidships
 WEIGHT COMPLETE.....130 lbs.
 SEATING CAPACITY.....4 Passengers
 CONSTRUCTION
 $\frac{1}{4}$ " "Weldwood" over sawed frames
 TYPESemi-vee-bottom, multi-purpose

"BUDDY," a general utility boat, was designed to meet the greatest possible variety of purposes and to serve each one well. With an over-all length of 13 feet and a generous beam of 56 inches, the hull seats three or four passengers and performs with stability and seaworthiness in rough or smooth water. Outboard motors from 1 to 6 hp. will propel this craft speedily and economically, while rowing it is easy. For those who love sailing, "Buddy" may be rigged as a sailboat and it will perform comparably with regulation sailing craft.

The construction requires marine plywood, making the boat easy to build, inexpensive, and producing a craft that is light in weight, easily



Equipped with a small 5 hp. outboard motor, "Buddy" makes an excellent craft for general utility and especially for fishing.

transported and permanently leakproof under all conditions.

To begin the construction of this many-purpose boat, first scan the lists of material, procure the various pieces and prepare to fashion as outlined. The first step in the construction will be to draw full-size patterns on paper of the frames and stem. Lay frame and stem material on patterns so as to conform to outlines, mark and saw the parts to shape.

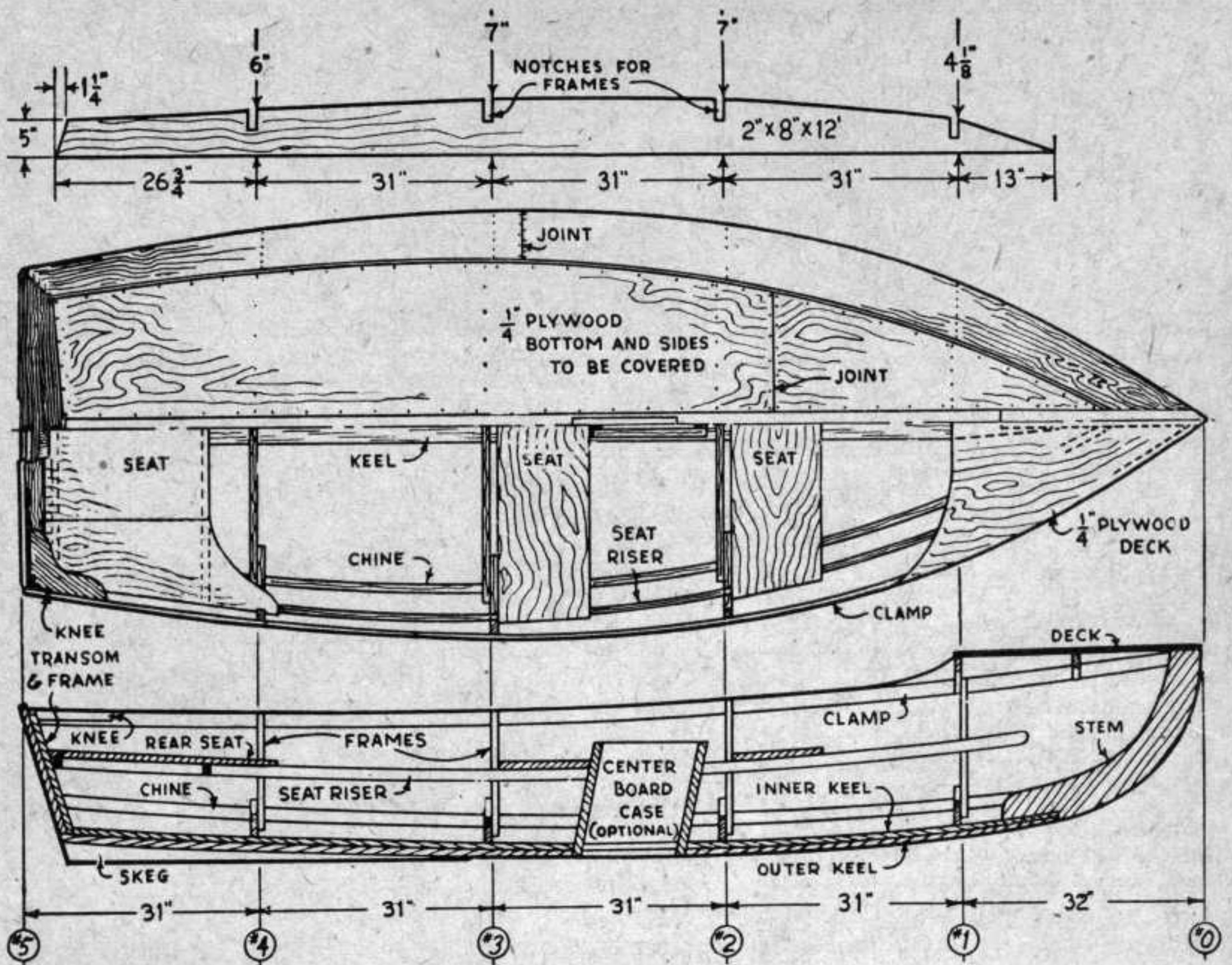
The bottom or vee parts of each frame may be sawed from one wide piece or two short pieces joined together with a floor frame. Either way lay the shaped frame parts upon the full size outline, coat adjoining surfaces with marine glue and screw fasten each joint with two $1\frac{1}{2}$ " No. 8 f.h. screws. Drill lead holes for all fastenings

to prevent split and weakened joints. Rabbeting the stem is the only part that may cause difficulties, and this is easily accomplished if each detail is followed.

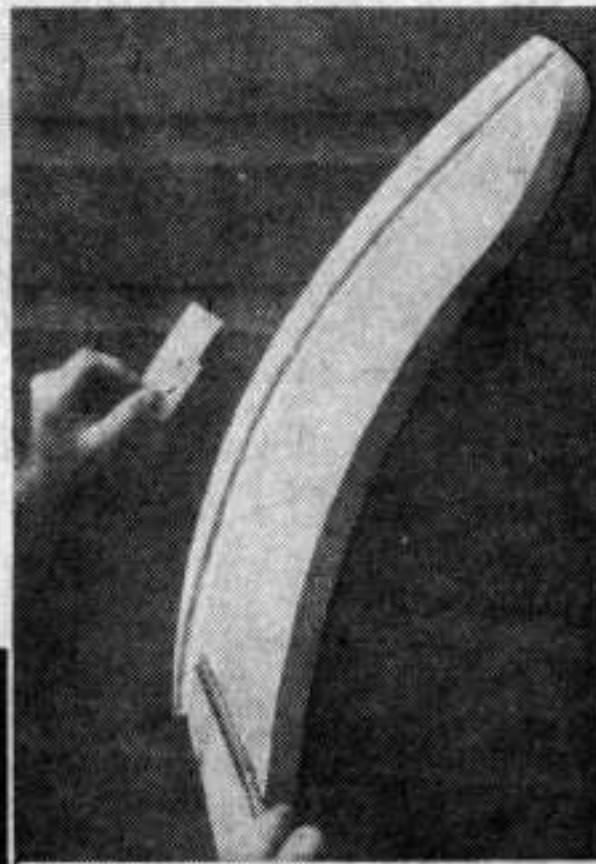
With the stem blank sawed to shape, bevel the forward or leading edges each side as indicated upon the stem sections. Rabbeting consists in cutting with chisel and hammer the side of the stem

This interior view shows the comfortable seating arrangement and the broad plywood floor.



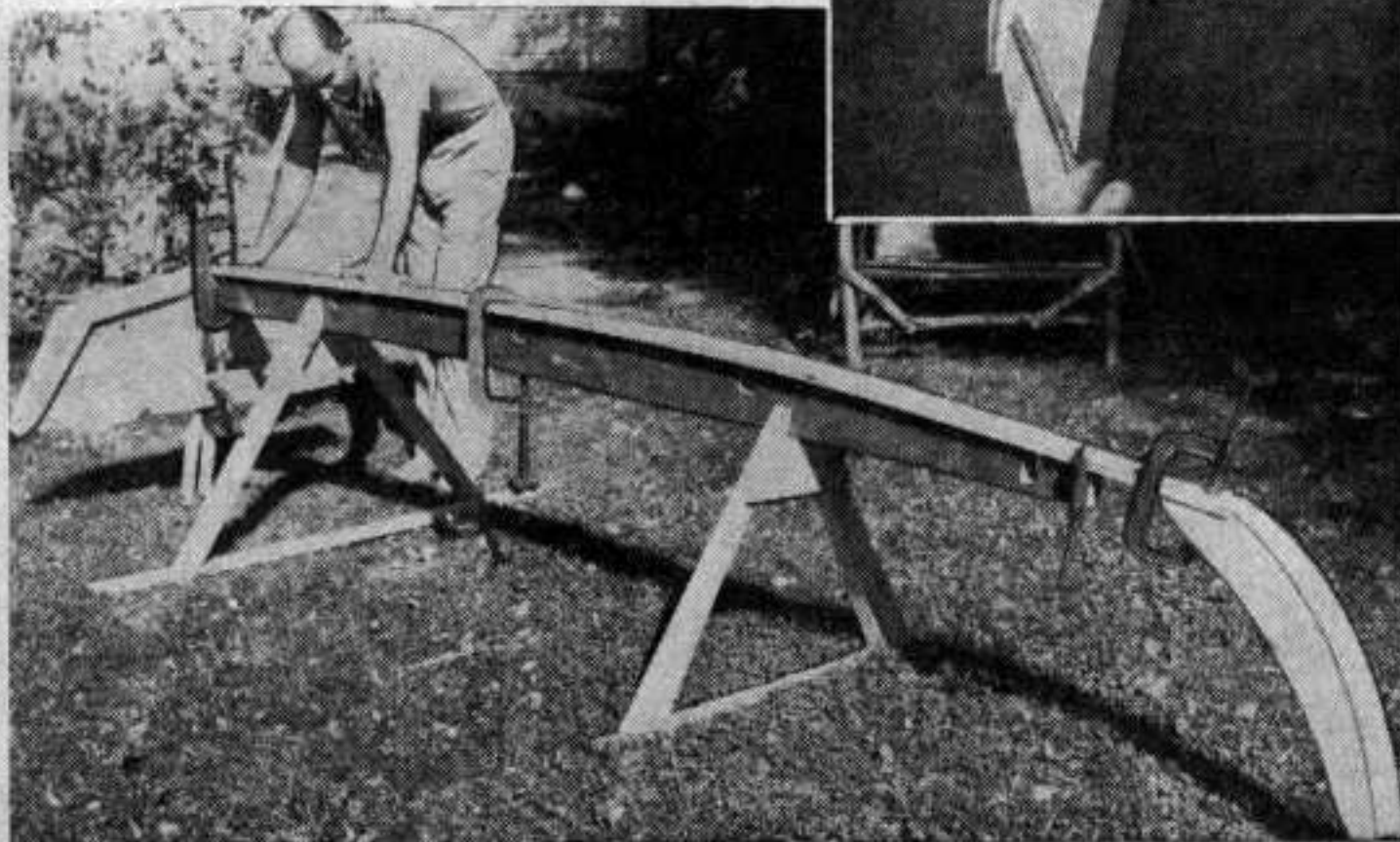


so the plywood planking will fit flush into the stem, and at the angle determined by the first beveling operation. To gauge the depth of the rabbet cut properly, a small cardboard or plywood pattern called a fid is made and fitted in the rabbet as the work progresses. Cut a 6-inch length of rabbet at one time so as to avoid mistakes. Cut the rabbet joint slightly deeper than necessary so the

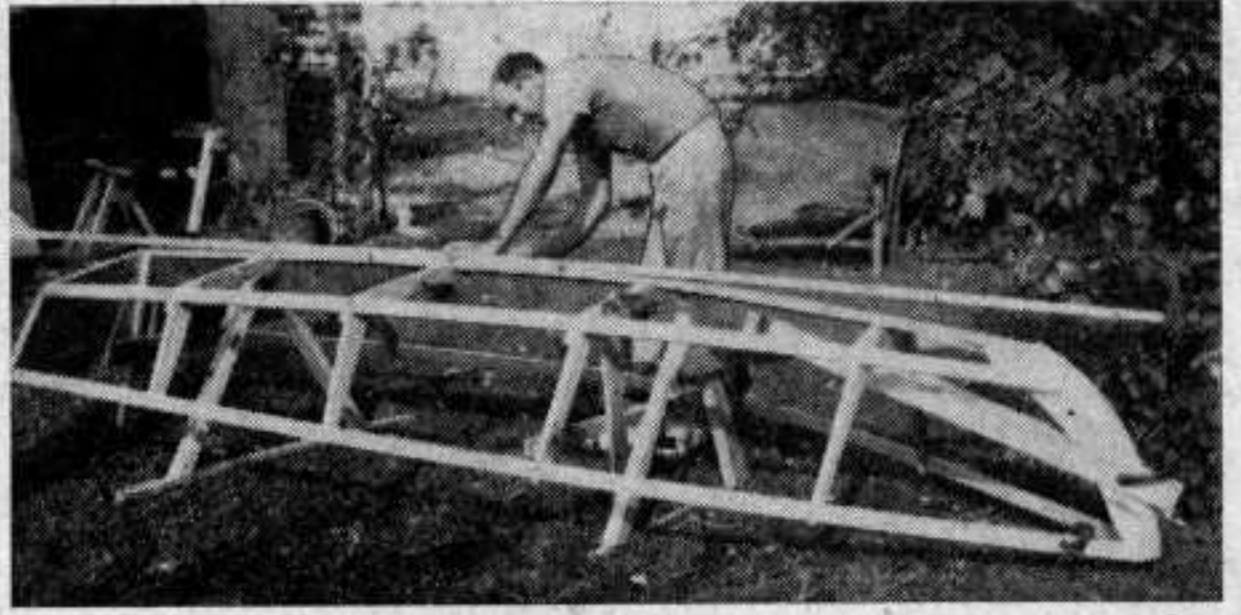
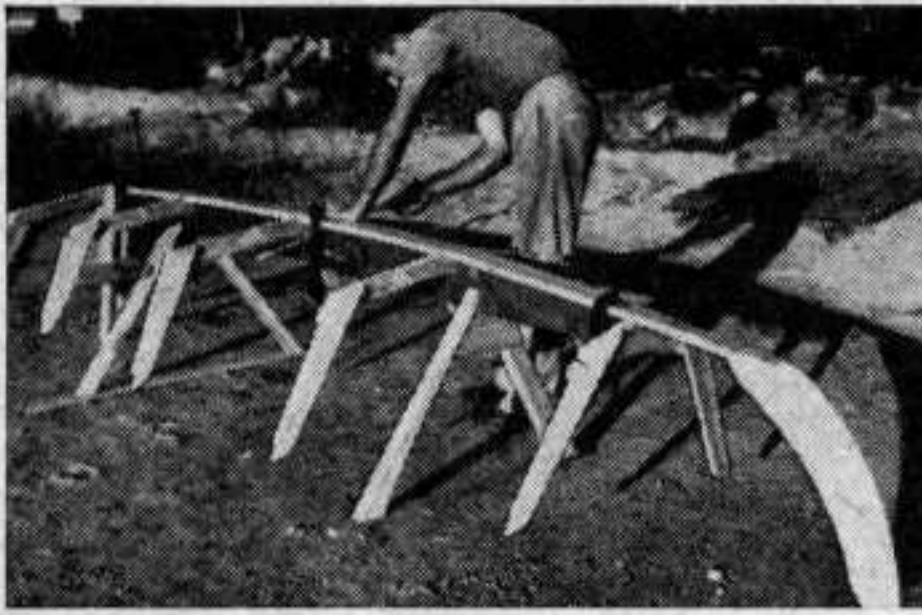


You can use a chisel and a fid as depth guides, when cutting the rabbet in the stem.

joint may be trimmed flush. With the stem and frames made, the next initial step is the sawing to shape of the form upon which the hull is built. Mount this form upon legs similar to a sawhorse at a convenient working height. Notch form for frames and proceed to insert frames in their respective positions. Spring a light batten around all frames, marking the edges of all frames necessitating beveling, remove the frames, and plane the edges. This beveling permits the plywood planking to fit snugly against the frame edges. The various frames, including frame only of transom, are now notched for keel, chine and clamps following the sweep of the beveled edges.



In starting to build the "Buddy," keel, stem, and transom are assembled on the form as shown.

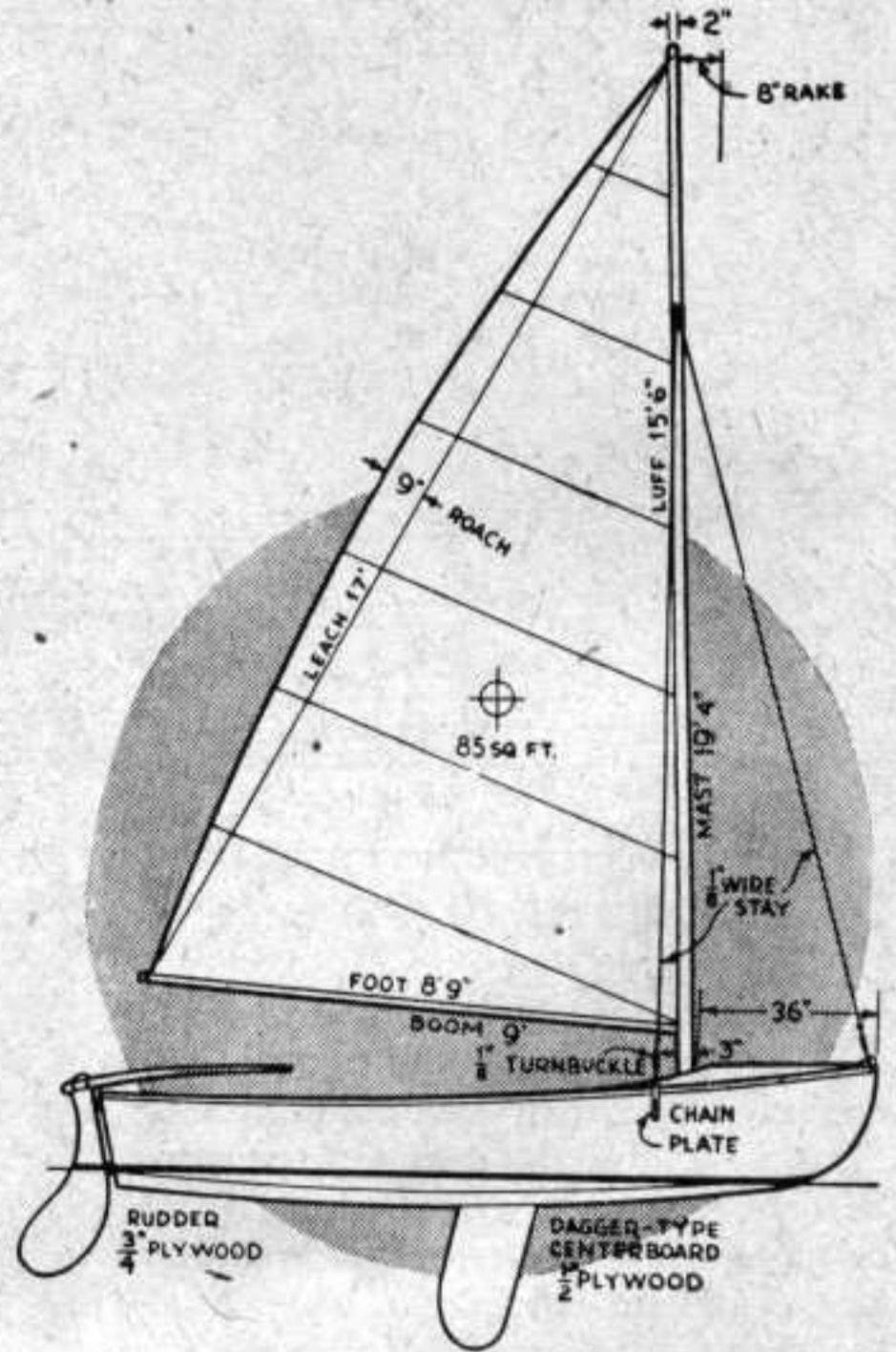


Frames are assembled in the notches cut accurately in the form.

With the addition of outer keel, chines and clamps, the now rigid framework is about ready for planking.

LIST OF MATERIALS

Parts	Pieces	Finished Sizes
Planking:		
Bottom and Deck—"Weldwood"....	2	1/4"x48"x96"
Sides	1	1/4"x48"x96"
Sides	1	1/4"x48"x72"
Flooring	1	1/4"x48"x96"
Keel:		
Inner	1	3/4"x4"x12'
Outer	1	3/4"x2"x12'
Chines	2	3/4"x1 3/4"x14'
Seat Risers	2	3/4"x1 1/2"x12'
Clamps	2	1/2"x1 3/4"x14'
Mouldings	2	1/2"x1"x14'
Transom (two pieces 10"x4') or.....	1	3/4"x20"x4'
Motor Board	1	3/4"x12"x18"
Frames, including transom frames:		
Uprights	2	3/4"x3"x9'
Beam Pieces—"Weldwood"	1	3/4"x24"x48"
Deck Beams	1	3/4"x10"x40"
Seats	2	3/4"x12"x9'
Rear Seat Supports	1	3/4"x1 3/4"x8'
Stem	1	2"x10"x3'
Skeg	1	1"x3"x5'
Transom Knee	1	1 1/4"x8"x3'
Form	1	2"x8"x12'



The work of construction now really begins. Insert frames on form, clamping transom and stem to form and placing a few sticks of wood from floor to frames to align and prevent twisting. The 3/4" x 3 3/4" keel is now clamped in the frame notches and secured temporarily to the form with screws, while the keel is screw-fastened to each frame joint and stem with two 1 3/4" No. 8 f.h. screws.

The 3/4" x 1 3/4" chines are now fastened, each side simultaneously to the frame notches. Begin at the transom and work forward, ending by beveling chine ends to fit just aft of stem rabbet

LIST OF OTHER MATERIALS

5 gro. 1" No. 8 f.h. screws	3 pts. Inside paint
1 gro. 3/4" No. 8 f.h. screws	1 pt. Turpentine and 1 pt. linseed oil—priming coat
1/2 gro. 1 1/2" No. 8 f.h. screws	1 qt. Outside paint, or equal amounts of varnish
1/2 gro. 1 3/4" No. 8 f.h. screws	2 Metal oar locks, North River Style
1 lb. 1 1/4" galvanized shingle nails	1 pr. 6 1/2' spruce oars
2 ozs. 3/4" iron clout nails	1 1/4" mooring eye bolt.
4 ozs. Marine glue	
1/2 pt. "C" quality marine glue	
Muslin cloth strips	

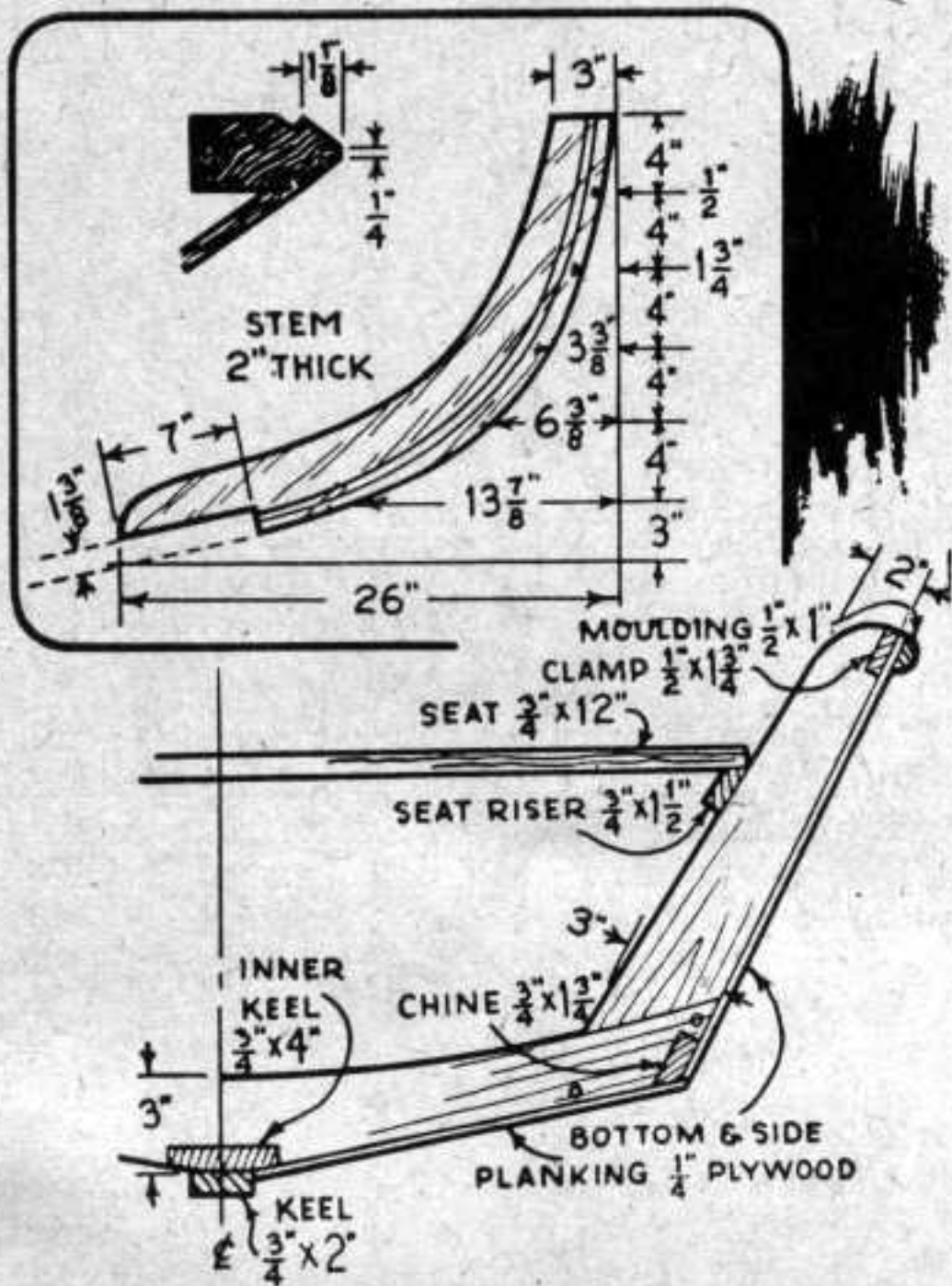
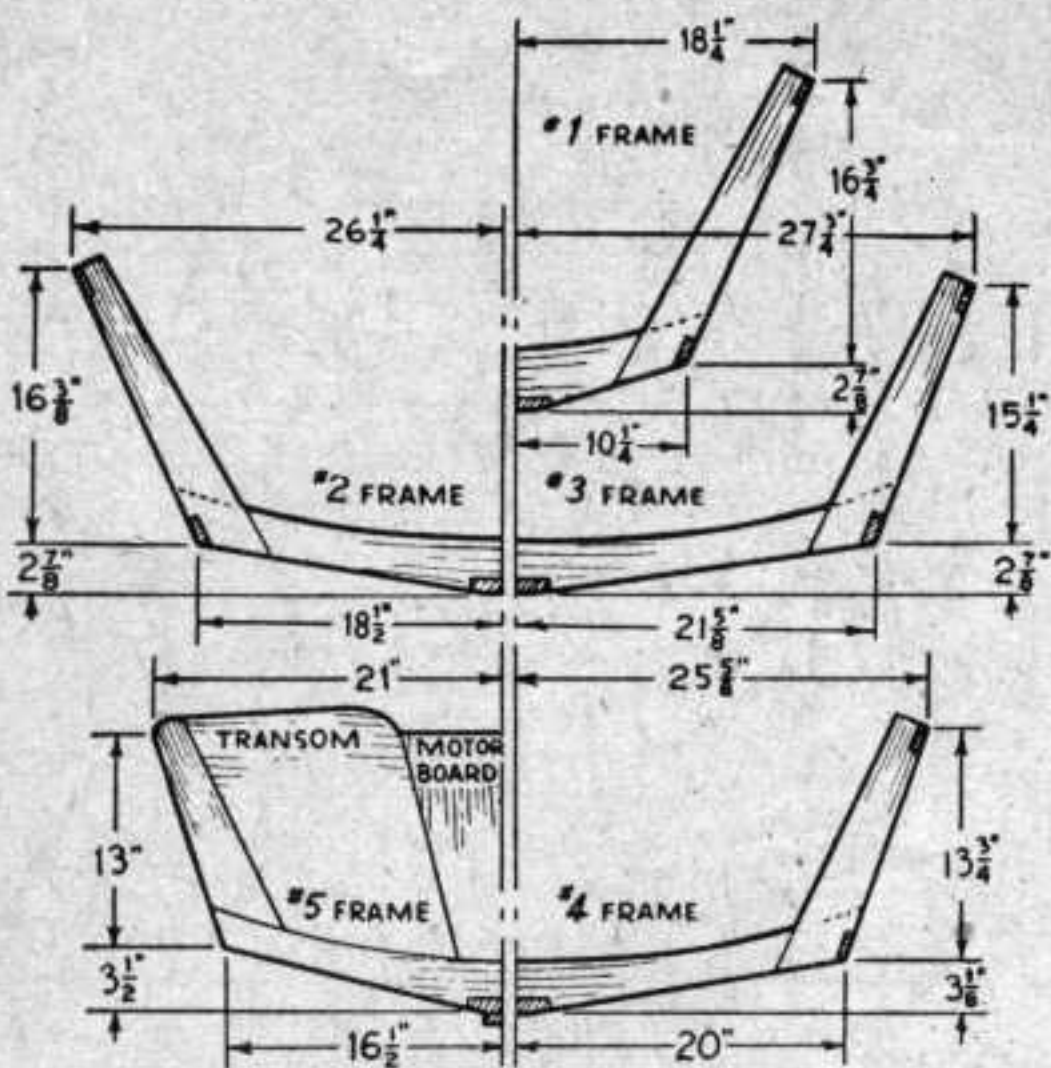
For those who love sailing, "Buddy" may be rigged as a sailboat and it will perform excellently.

and fastening each joint with 1 3/4" No. 8 f.h. screws.

Fastening the 1/2" x 1 3/4" clamps in the frame notches is next

accomplished and secured with one 1 1/2" No. 8 f.h. screw to each joint while the forward ends are beveled to fit just below the stem rabbet and fastened similarly.

The entire framework is now trimmed and faired so the plywood planking to be applied will lie evenly and uniformly at all points of contact. At this point the 3/4" x 2" outer keel

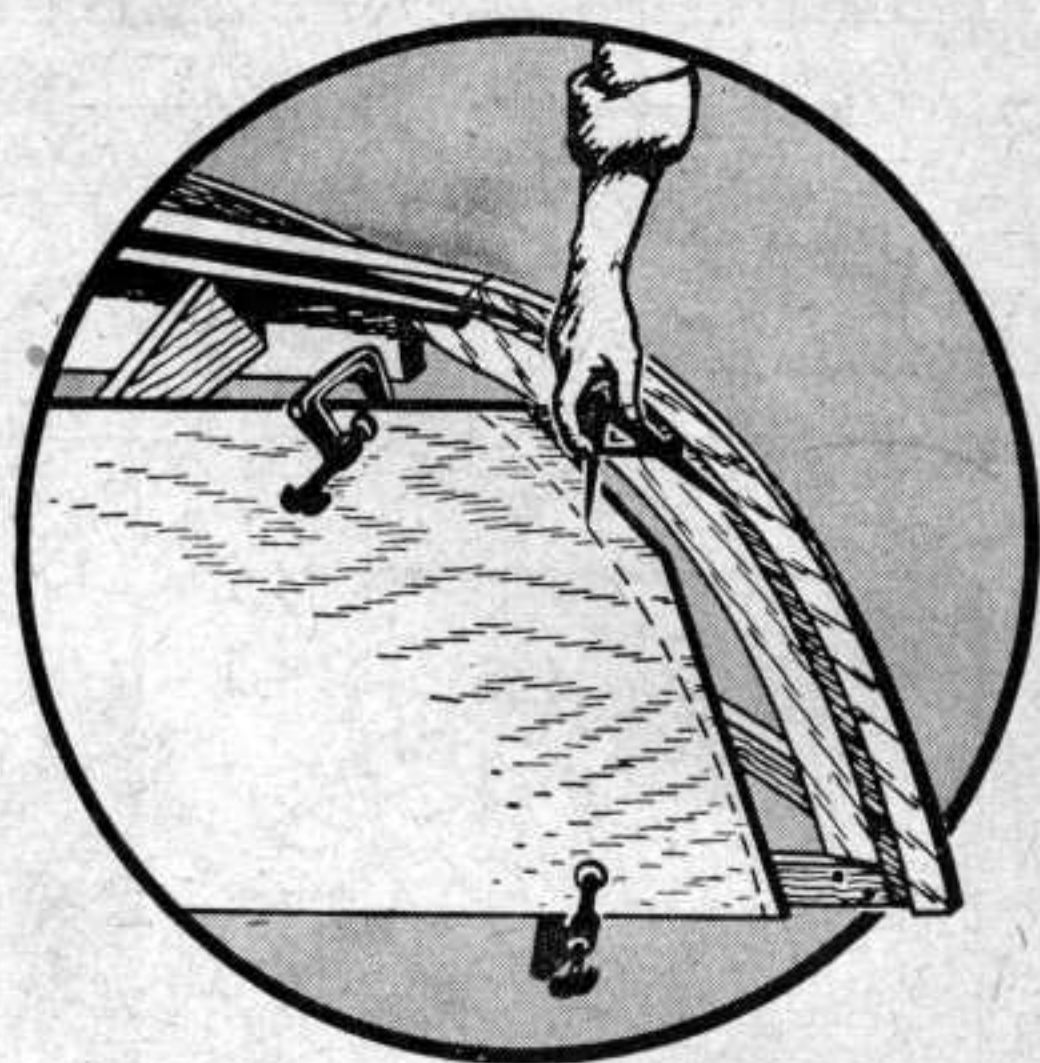


is placed in position over the inner keel and is marked along each edge. The outer keel is removed and the inner keel is beveled on each side. The outer keel is then returned to position and fastened with $1\frac{1}{2}$ " No. 8 f.h. screws spaced at intervals of six inches. Trim the keel to fit evenly at the stem and cut the keel flush with the outside of the transom.

The framework is now ready for planking and this is begun by planking the sides first. Clamp a 4' x 8' sheet of plywood in position to the side of the framework so that enough extends over to fit the stem properly. Mark and saw to shape. One 4' x 8' sheet of plywood will make

a forward side piece and one after bottom piece. This bottom piece may be marked to shape now allowing enough for fitting against keel and over chine.

With both forward side pieces sawed to shape, clamp in position and proceed to fit forward ends in rabbet by the aid of a compass as indicated. When properly fitted, coat chines and stem rabbet with "C" quality marine glue, clamp plywood planks in position and fasten to frames and chines with 1" No. 8 f.h. screws, spaced about



To obtain a secure joint at the stem scribe the curve of the stem rabbet on the side planking as shown above. Be sure that the points of the calipers are parallel to the base line at each measurement.

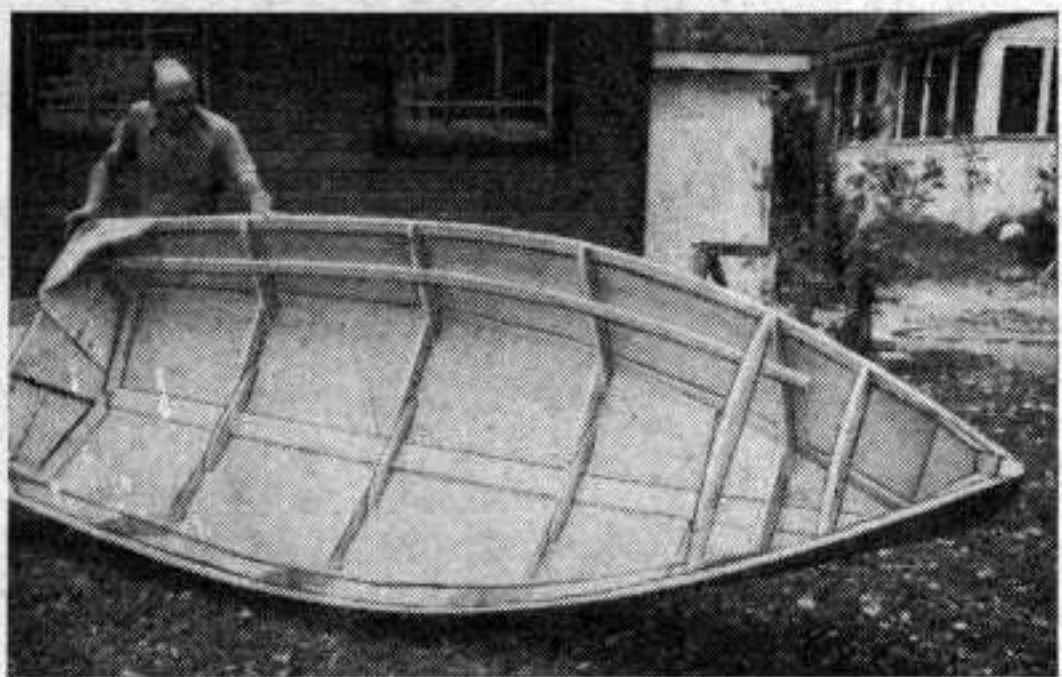
two inches apart. Fasten the other side similarly and cut and fit the after portion of the sides. The planking along the clamps is secured with 1 1/4" galvanized shingle nails, spaced about three inches apart and clinched on the inside. Trim edges of planking evenly along chines and clamps.

The Bottom Comes Next

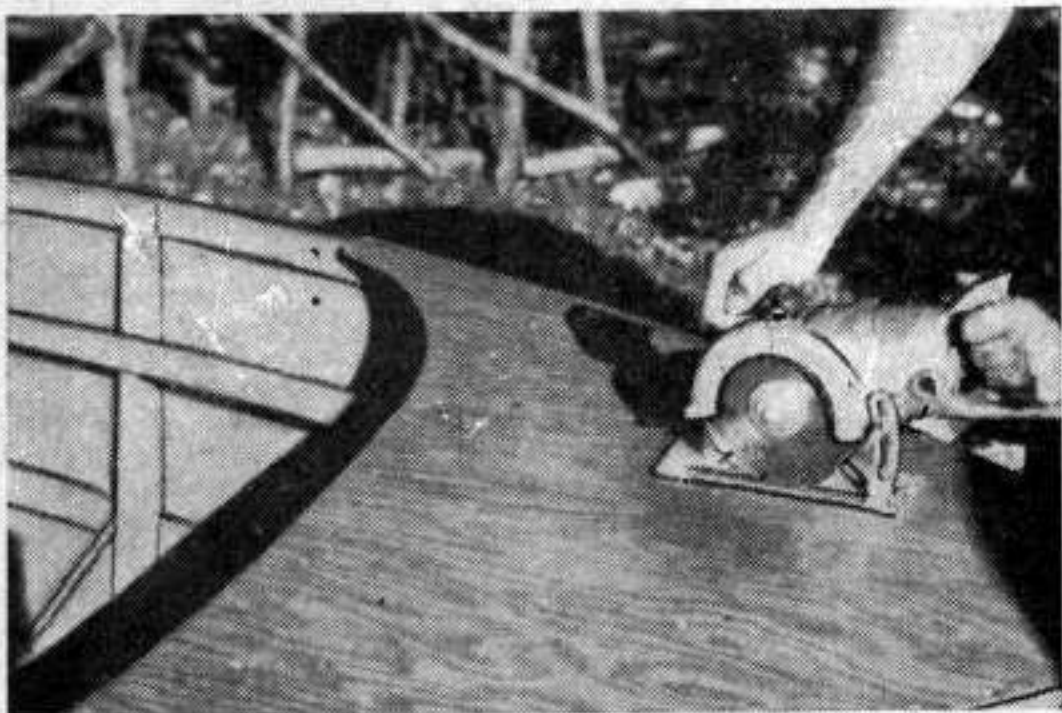
Planking the bottom is next. The two after bottom pieces of plywood, cut to shape, are now trimmed to fit along keel. Remove the planks, coat chines and keel with marine glue, lay cloth strips on glued area, and laying planking in position proceed to fasten to transom and chines with 1" No. 8 f.h. screws and to keel with 3/4" No. 8 f.h. screws spaced about two inches apart. The remaining parts of the bottom are now covered with pieces of plywood, laid in position, marked and cut to shape, and fastened similarly to rest of bottom. The joints of plywood on sides and bottom are secured with 6-inch widths of plywood, commonly called butt blocks. Coat this butt block with glue, place in center of joint and secure plywood ends to block with 3/4" iron clout nails clinched on the inside. Joints so se-



A small electric hand drill makes easier the work of planking the sides and bottom.



Interior view of the nearly completed "Buddy." Seat risers and bow deck beams are attached to the frame. Corner braces are in place in the stern.



A small power-driven saw here scores the plywood decks to simulate narrow planks.

cured produce a hull that is in every way the equal of full length planking material. Remove hull from form, trim and sand edges of plywood smoothly.

At this point apply a coat of equal parts turpentine and linseed oil to the outside and inside

of the hull. The $\frac{3}{4}$ " x $1\frac{1}{2}$ " seat riser is now notched slightly into frames and screw fastened with $1\frac{3}{4}$ " No. 8 f.h. screws. Screw-fasten the deck beams forward for the deck and proceed to fasten the short plywood deck in position with 1" No. 8 f.h. screws, spaced about three inches.

With the attachment of the $\frac{1}{2}$ " x 1" mouldings, screw-fastened with $1\frac{1}{2}$ " No. 8 f.h. screws spaced at 8-inch intervals, our craft "Buddy" is about finished with the exception of transom knees and seats, which may be either straight boards or the rear seat may be shaped as indicated upon

the plans. These are screw-fastened to the seat risers with $1\frac{3}{4}$ " No. 8 f.h. screws.

The finish, whether paint or varnish, depends upon the builder's fancy. In any event, apply at least three coats of paint or varnish inside and out.

● Craft Print No. 104 in enlarged size for building the "Buddy" is available at 25¢ each. Address Craft Print Dept. B-48, SCIENCE AND MECHANICS, 49 East Superior St., Chicago 11, Ill.

