steps to width and length, round off fore edges and secure steps to sides, using six 2-inch No. 8 round head screws for each step (three to a side). Additional ¾ x 1 inch supports are screw-fastened to the underside of the steps as indicated. To prevent sand or dirt from being carried below, cover the rear portion with ⅜ inch mahogany plywood which is screw-fastened in position. To secure ladder to the floor, make two floor holders as shown. Slot and screw-fasten them to the floor. Then the ladder is simply inserted in floor slots and you have completed the job.

Building WIDGETT

Try this beamy utility boat. You'll like its simplified construction

By WILLIAM D. JACKSON

Craft Print Project No. 47

BUILDING *Widgett* requires only ordinary tools and no steam bending. It may be built in a fraction of the time required for ordinary utility boats. It is beamy and stable on any waters anywhere and, despite its simplified construction, is immensely strong and durable enough to give you real service.

Everything about *Widgett* has been planned so that it can be built in quantity, quickly and cheaply, either for livery service or boat builders who wish to earn a reasonable profit with a first rate design. However, if your intentions are to build just one boat for personal use, this boat will out-perform most any ordinary boat of its class sold on the market today.

View of form ready for assembly.

The construction of Widgett starts with the collection of the various materials required in its fabrication. Try to secure oak for all frame parts, except seats, and exterior (waterproof) plywood for covering. Widgett is meant to be glue bonded with either Cascophen or Perdico Resin Glue, and plywood should be fastened in place with 1-inch galvanized nails with annular rings grooved in the nails. If plywood is bonded to an oak frame with these resinous glues and grooved nails the finished hull will be bonded together permanently. Start the construction proper by sawing the form to shape from a 2 inch x 12 inch x 12 foot pine plank. This form is notched for the mold frames and mounted atop legs similar to a saw horse at a convenient working height. If this form and the molds are retained after the first hull is completed, any num-

ber of *Widgetts* may be built over this form.

Draw fullsize paper patterns of Transom No. 4 and Mold Frames Nos. 1, 2 and 3. As only one half of the frame drawings is shown on the plans, it's an easy matter to draw both halves exactly alike, so as to have a complete mold frame pattern. Also make full-size patterns of the stem and, laying the material for transom, mold frames and stem on the pattern outline, mark and cut to shape the various parts. The transom consists of a ⅝ inch waterproof plywood backing secured to a ¾ inch oak frame as indicated; plywood is glue-bonded and nailed to frame. Mold Frames Nos. 1, 2 and 3 are simply 2 x 4's, and chine joints are secured with plywood gussets, glue bonded and nailed in place. As form and molds are removed after hull is completed, any common lumber will suffice for these members, which should, however, be accurately made. The stem is also sawed to shape, and edges are beveled as shown and notched for the keel; stem is then clamped to the form. The mold frames are now notched for keel, chines, and clamps and also the transom, except

LIST OF MATERIALS

Plywood (Exterior or Waterproof Fir)

Bottom	1 pc. ⅝" x 4' x 8'
Sides	1 pc. ⅜" x 3' x 3'
Transom	2 pcs. ¼" x 4' x 8'
Seat bench	1 pc. ⅜" x 20" x 42"
	1 pc. ¾" x 12" x 12"
Frame Members (Oak)	
Chines	3 pcs. ¾" x 1⅜" x 12'
Inside keel	1 pc. ¾" x 3¾" x 12'
Outside keel	1 pc. ¾" x 2" x 12'
Clamps	2 pcs. ¾" x 1½" x 14'
Moldings	2 pcs. ¾" x 1⅜" x 14'
Seat risers	2 pcs. ¾" x 1½" x 12'
Stem	1 pc. 1¾" x 8" x 38"
Stem band	1 pc. ½" x 1½" x 38"
Transom frame	1 pc. ¾" x 8¾" x 8'
Transom frame	1 pc. ¾" x 3½" x 4'
Rub strips	2 pcs. ¾" x 1¼" x 10'
Seats	1 pc. ¾" x 11¾" x 12'
Form	1 pc. 2" x 12" x 12'
Molds	3 pcs. 2" x 4" x 12'
Form legs	2 pcs. 2" x 4" x 8'
Plywood gussets	1 pc. ¼" x 2' x 4'

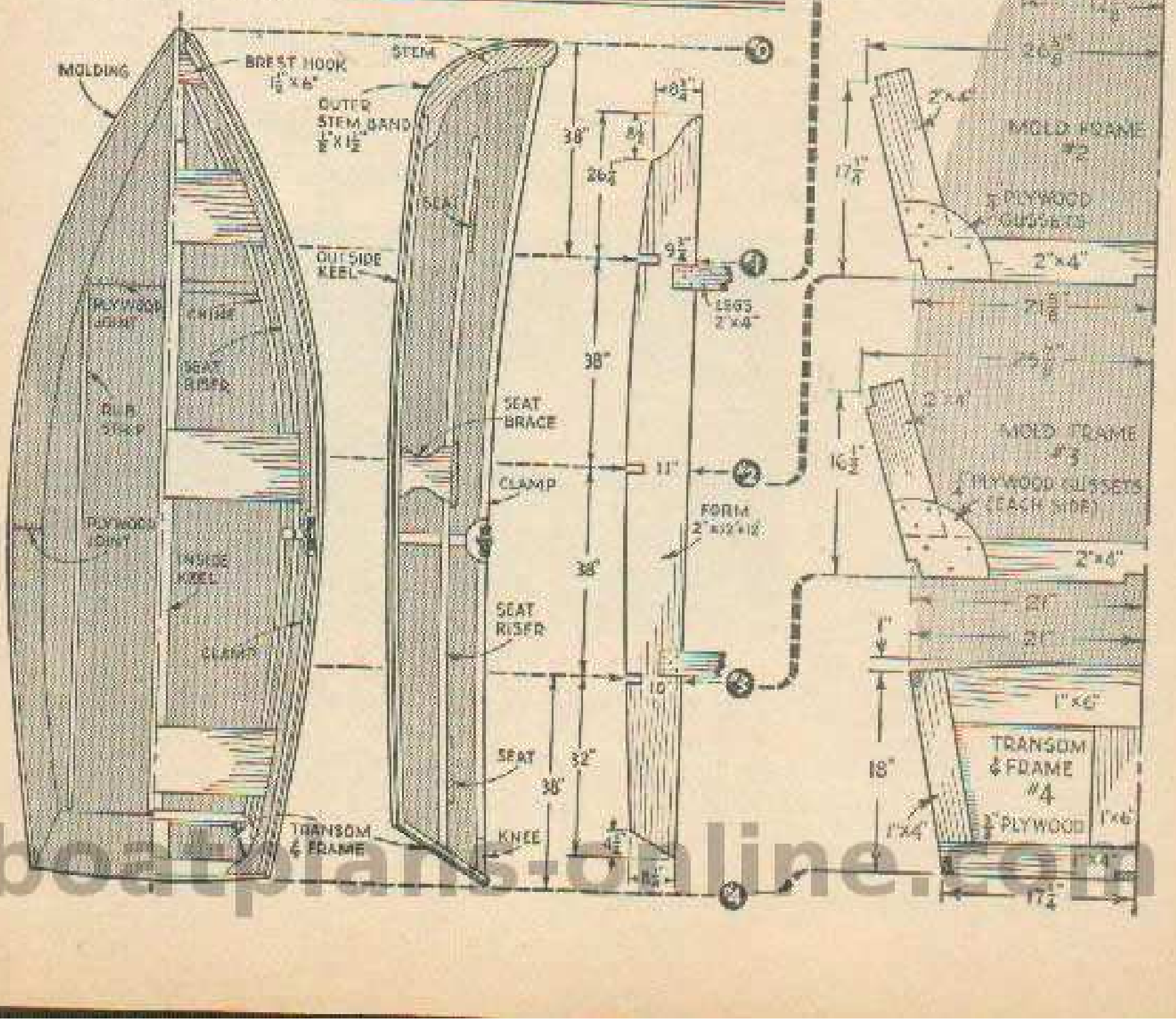
Dimensions as sold in any lumber yard.

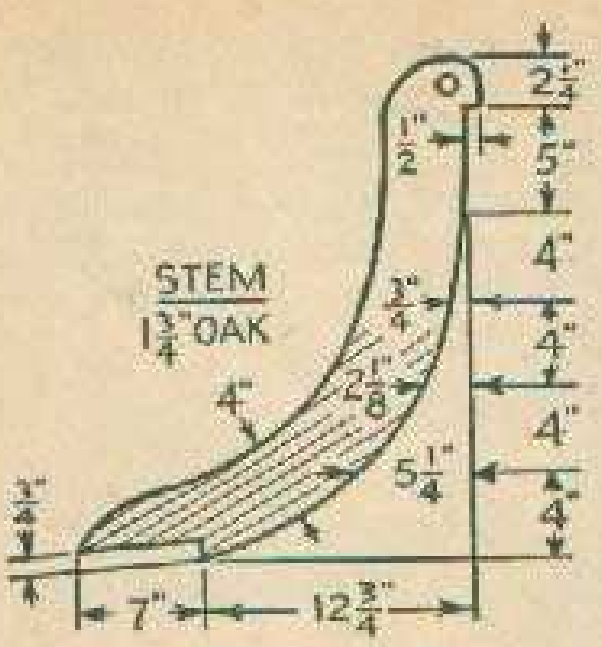
Fastenings

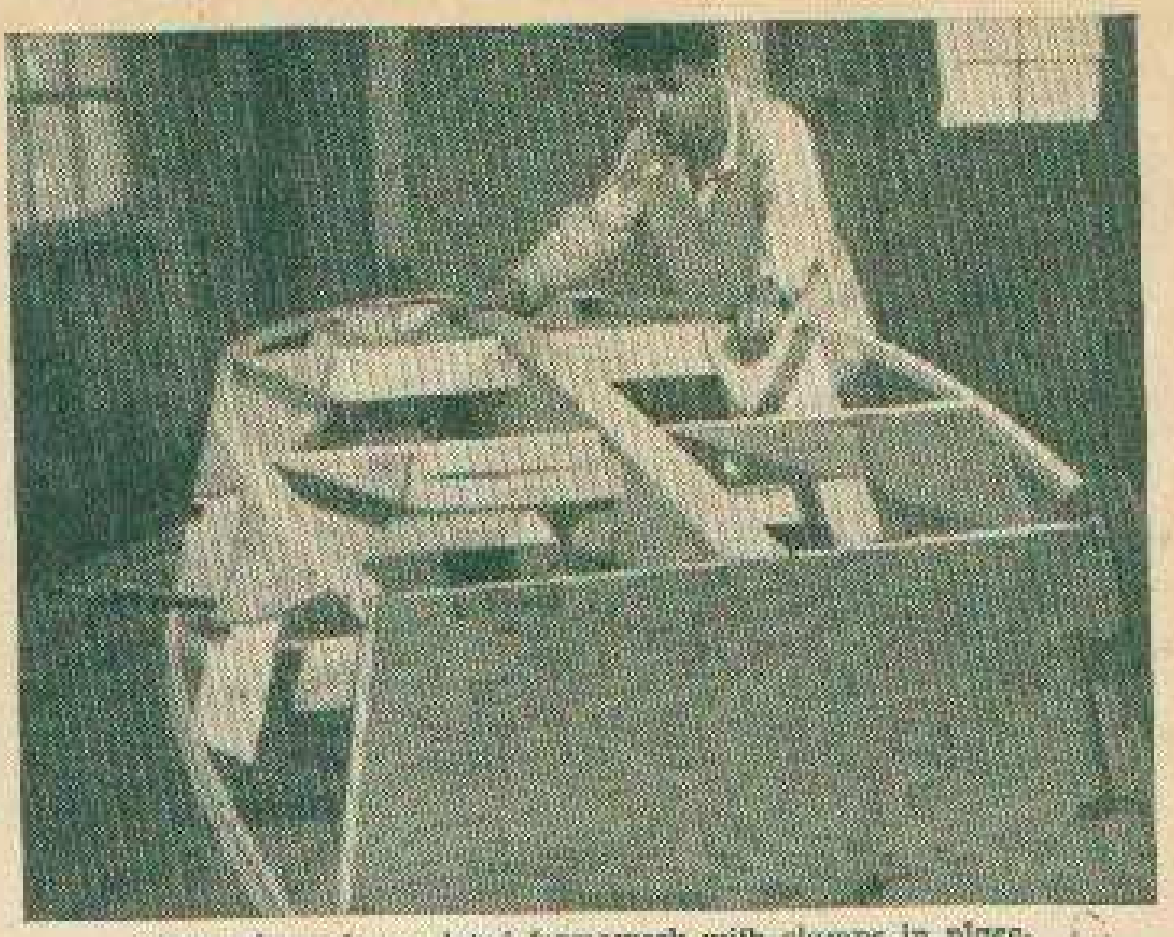
½ lb.	1" Anchorlite Nails
3 dozen	1" #6 flat head screws
4 dozen	1½" #10 flat head screws
2 dozen	2" #10 flat head screws

Finishing Materials

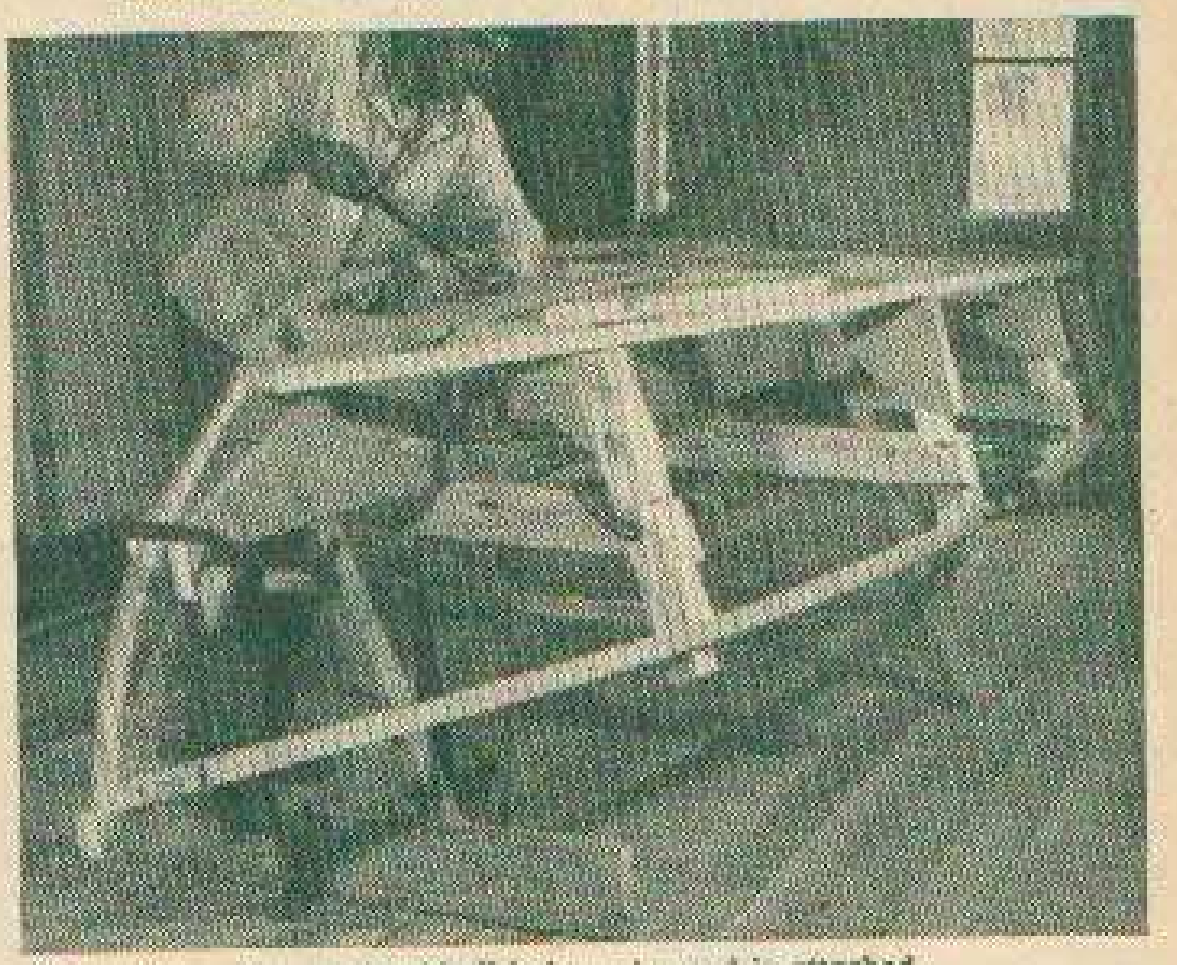
1 pint Cascophen or 1 lb. Perdice Resin Glue
2 quarts Firelite
1 pint varnish
3 pints buff inside paint
2 quarts white outside paint







Stern view of completed framework with clamps in place.



Bow view of hull before plywood is attached.

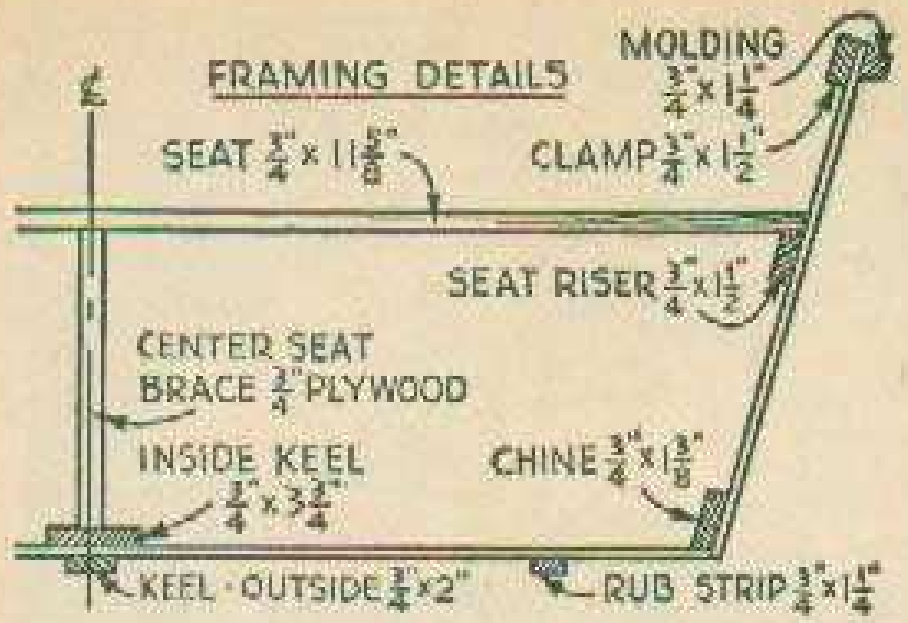
that the notches are to be cut through the transom frame only. Assemble molds in form notches and to maintain correct alignment during construction, nail 2 x 2's across tops to the form, and then spring a light batten around molds and transom. Mark the correct bevel each will require and bevel accordingly. Spring the ¾ x 3¾ inch keel in place over form and molds, and screw fasten it to transom notch and stem notch with two 2 inch No. 10 flathead screws to each joint. Don't fasten keel and chines to molds as this will make it impossible to remove the hull later. If any member persists in springing out of place, screw small angle irons to molds so as to hold chines and clamps in place and remove screws in angles when hull is completed and is ready to be lifted off form.

Now spring both chines in place simultaneously. Begin at transom notch and work forward to stem, bevelling ends to fit keel alongside of stem and fastening with one 2 inch No. 10 flathead screw to each joint. The clamps are next sprung in place and fastened similarly. The keel, chines, and clamp pieces are now faired so that the plywood to be applied lies evenly at all points. Use a plane and batten to insure that all contact surfaces are true and fair.

The bottom is applied first. Lay a ⅜ inch x 4 foot x 8 foot sheet of plywood in position, mark and cut to shape. The area that the 4 x 8 sheet fails to cover forward is covered with a small piece of ⅜ inch plywood and the bottom joint is spliced. To insure a firmly bonded plywood joint bevel ends of plywood as shown, coat contact surfaces with resin glue and clamp until dry. The application of heat will speed the process to about one hour. Before covering the bottom, coat all contact surfaces on bottom such as keel, chines, transom, and stem with resin glue. Then place plywood in position, and clamp and nail in place with 1 inch Anchortite nails placed about 1½ inches apart, using a double row of fastenings at the transom.

Trim edges of plywood evenly along chines, transom and stem and prepare to plank the sides similarly, using full length plywood, if available. If not, provide a joint at point indicated, bevelling in the same way bottom was bevelled. Coat all contact surfaces liberally with resinous glue, clamp plywood in position, and nail closely. A piece of iron held against the underside will greatly facilitate driving the nails home.

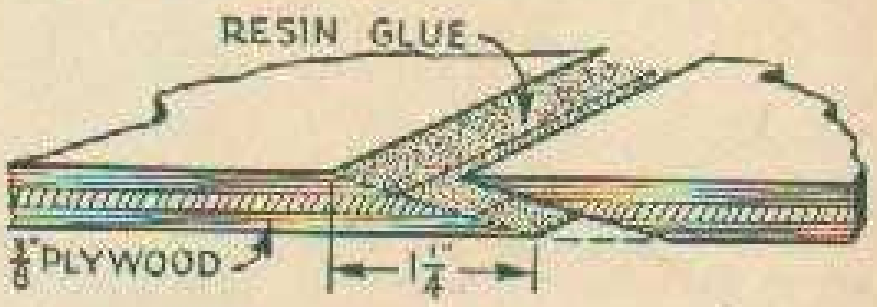
With sides planked and edges trimmed evenly, fasten a ⅜ x 1½ inch oak strip, to cover exposed edges of plywood at stem. To facilitate bending this strip in place, soften it with hot water and



screw fasten with 1 inch No. 8 flathead screws. The outside keel and rub strips are now screw fastened in place; for outside keel insert 1½ inch No. 10 flathead screws from outside, and for the rub strips insert 1 inch No. 8 flathead screws from underneath the hull.

The hull is now removed from the form, turned right side up and the seat risers are sprung in position and nailed from the outside with the 1 inch nails. The breast hook and transom knees are now shaped from 1½ inch oak and screw-fastened in place with 2 inch No. 10 flathead screws, using four screws to each knee.

The moldings are clamped in place and fastened with 1½ inch No. 10 flathead screws inserted from the outside, first drilling lead holes through moldings and locating screws upon 8-inch centers. The seat boards are now cut to fit position and fastened in place to risers with three 1½ inch No. 10 flathead screws to each joint. Then seat bench for amidships seat is cut as shown from ¾ inch plywood and screw fastened to seat and keel.



For a really smooth and waterproof finish, coat the entire hull with a first coater of Firzite. The paint finish to be applied will not only present a smooth metal-like surface but prevent future checking of the outer finish and waterproof the whole job. Follow the coating of Firzite when dry with two coats of paint inside and out. For a very trim and attractive finish, varnish the seats and moldings. Paint the bottom green, the sides white, and the inside buff.

• Craft Print No. 47 in enlarged size for building the utility boat "Widgett" is available at 35c a set. Address Craft Print Dept. B-50, Science and Mechanics, 450 East Ohio Street, Chicago 11, Illinois.