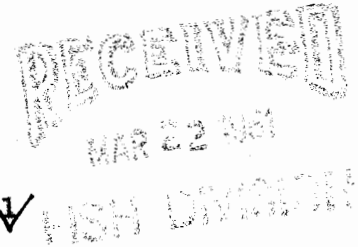


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Education - Game
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A Design of an Electric Shocker Boat ✓



✓ Contribution from the Michigan Institute for Fisheries Research

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Introduction

The electric shocker is becoming a very important piece of equipment in fishery work. Its use in streams for general collecting and in fish population estimates has been adopted readily by most workers. The present article describes a utility boat that has been used with success in Michigan during the past few years with both A.C. and D.C. shocking equipment. The advantages of this boat over the variety of light weight metal, wood or plastic boats offered on the market is primarily one of size and cost. The boat is constructed of marine plywood, weighs about 55 pounds and the cost of materials at the time of writing is about \$25.

Construction

The boat can be constructed simply by using the list of materials and special tools listed below and then following the assembling procedure:

MATERIALS:

- 1 5/8 sheets of 4' x 8' x 1/4" marine plywood
Or order plywood already cut as follows:
 - 1 piece, 8' x 35"
 - 2 pieces, 8' x 12"
 - 2 pieces, 8' x 9"
- 7 pieces, 8' x 3/4" x 1" Hardwood frames.
- 6 pieces, 8' x 3/4" x 2" Hardwood keels.
- 3 Gross, size 7, 3/4" flat head brass screws.
- 1/4 pound, waterproof glue.
- 8--3" metal corner braces.
- 2--1/4" eyebolts.

SPECIAL TOOLS:

- 3 or more 4 1/2' metal clamps.
- 2 or more C clamps.
- 1--9' plank, 2" x 10" or larger.
- 1/16 drill and hand drill for screw holes.
- 1 plane or wood rasp for trimming.

PROCEDURE:

Construct each side using measurements in Figure 2. After marking points for width draw curve for bottom using another piece of plywood for a marking edge. Glue and clamp top frame piece flush with top edge and fasten. Place two vertical frames 28 inches from each end and bend the bottom frame in place and fasten. Allow the plywood to overlap the bottom frame 1/4 inch. Fasten all the short vertical frame pieces last, four on each side.

Construct the bottom (Fig. 1) by turning the sides bottom edges up and parallel to each other. Place the two spreaders at 28 inches from each end on the vertical frames and clamp sides together across each end. Do not fasten spreaders permanently. Spring ends inward until they measure 26 inches outside. Lay the 35-inch piece of plywood across for bottom. Clamp each

end of the plywood down on the side pieces and mark along the outside edge. Remove and cut out the bottom piece. Fasten the bottom in place by releasing clamps until bottom drops into place on the bottom frames. Clamp and fasten bottom, working across boat from one end to the opposite end. Fasten a piece across each end on the inside bottom and turn the boat right side up.

Construct the ends from measurements in Figure 3. Cut the end pieces from plywood 9 inches wide. Fasten across bottom frame working up each side frame. Use a clamp across top edge at each end to spring sides in place before fastening ends. Fasten the top frame piece in place last. Use a frame 2 inches wide at the top edge in the bow. The two eyebolts are fastened to this piece for towing. Another piece 2 inches wide may be fastened to the outside on the bottom edge of the bow to prevent chafing and to give added support. There is enough extra material listed for keels to use for these two pieces.

The stringers are fastened with corner braces 5 inches down from gunwale on vertical frames. These should be fastened securely as they are used to lift the boat as well as to give the boat support and shape. Each corner is given more support by fastening a corner brace inside across top frames.

Fasten the keels last as shown in Figure 1 and Figure 3. Draw a center line both inside and outside along the bottom for each keel. Clamp the keels in place; turn the boat on edge and fasten the keels from inside.

CONSTRUCTION HINTS:

Oak is generally used for hardwood frames and keels. The 9 foot plank is used on saw horses for clamping bottom section in place. Scraps of wood of various lengths can be worked under clamp jaws to help hold construction pieces together for fastening. Screws should be placed about 3 1/2 inches

apart and countersunk. Speed up the screw fastening with an electric drill or wood brace with screw driver attachments. The keels can be cut from full 8-foot flooring. Saw tongue and groove off and re-saw. The finished strips will be about $\frac{3}{8}$ inch thick depending upon the width of saw cut. Cover all areas that are fastened together with glue. Do not make sides over 7 feet x $11\frac{3}{4}$ inches total length. The plywood comes in 8-foot lengths and the curve of the bottom shortens the total length. Fasten all frame pieces on inside of boat except extra piece at bottom of bow and keels. Working the clamps close together across the bottom will give the sections a better fit.

Modifications for Direct Current Use

Boats constructed for carrying alternating current electric equipment can be modified easily. Cover the area between any two keels with a sheet of copper or copper screen. Cut it long enough to overlap an inch on each end. Fasten the strip down under the keels and under the extra outside bow strip. Use tacks to fasten the stern edge.

For added convenience drill a small hole near top edge of bow and run a heavy insulated wire from a negative plug to the copper strip, and solder.

ELECTRIC SHOCKER BOAT

SCALE 1 INCH = 1 FOOT

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INSTITUTE FOR FISHERIES RESEARCH

MATERIAL SPECIFICATIONS

Sides, Bottom, & Ends - Marine Plywood
Keels, Ribs, & Braces 3/4" x 1" oak or ash
Screws 3/4" x No. 7 Flat-head brass

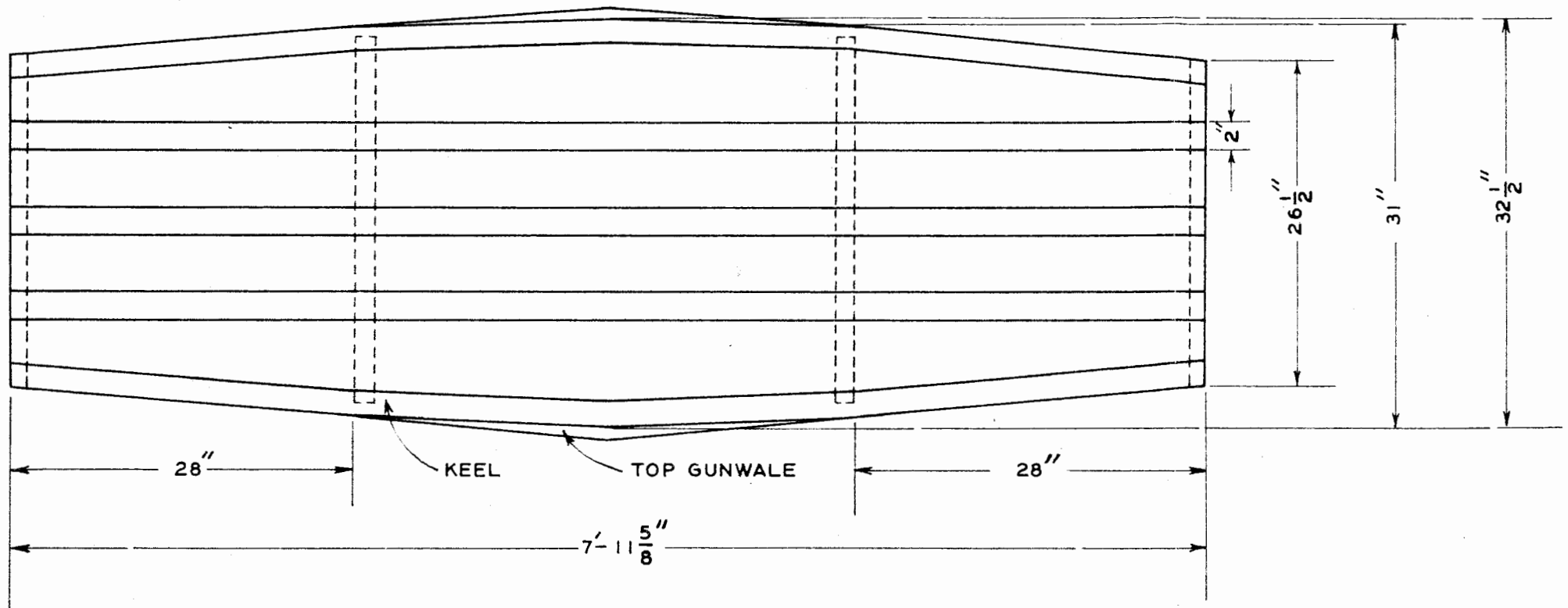


FIG. 1 BOTTOM VIEW

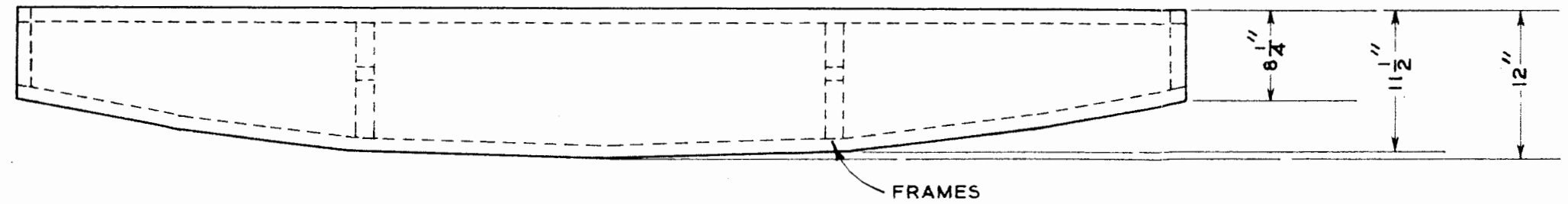


FIG. 2 SIDE VIEW
KEELS OMITTED

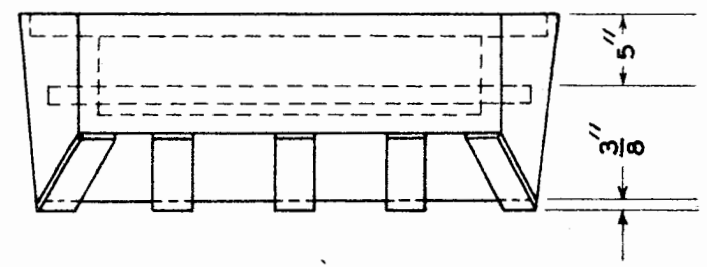


FIG. 3 END VIEW
SHOWING KEELS