

for the **BEAR** **ANCE** with **HINCE**

MAR. 1946
25 CENTS

MONTHLY



**STOP GAP
HOUSING - p. 66**

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Homebuilt Vacation Trailer Has Sleeping and Storage Space

THE call of the open road has sounded pretty faint and hoarse these last few years, but now, at last, there's a peacetime summer on the way.

And that's not all. Millions of vacation-hungry Americans are also getting under way—making plans, charting routes, readying equipment.

In case you've forgotten what it's like, vacationing by car takes more than an un-

limited gas supply. But the Wanderbug trailer, shown here, has what it takes—light weight, road appeal, plenty of sleeping and storage space, and all the fixings for a month away from sidewalks and shops.

You can't buy the Wanderbug, but you can build it from scratch at surprisingly low cost. Drawings and instructions begin this month on page 146. Start work now for a happy summer on the road.

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LIGHTWEIGHT TRAILER FOR WEEK-END VACATIONS

By John Gartner

PART 1

LESS than a thousand pounds of fully equipped trailer makes the kind of companion your car will be glad to take along on any trip. For all-year living, or leisurely travel on the main highways, the big commercial jobs still deserve your vote. But for quick week-end trips, cross-country jaunts over the mountains, or side-road excursions, you will want a lightweight traveler that gives you plenty of road clearance, tracks smoothly at any speed, and will even follow you off the road like Mary's little lamb.

You can get some of these things just by tying a kiddy car to the rear bumper, but you'd still be missing a good bet, for this trailer is no toy. It sleeps two adults and has plenty of room for two children on the floor, not to mention storage space for the family's needs. Measuring 10' in length and 6½' in width, it allows full headroom for a six footer with shoes on. You can get some idea of what it's like from the pictures on these pages; for a still better view of the finished job, see the color photos by Frank Lindgren, Jr., on page 117.

Cost is bound to be a major

factor in any project of this size, but no close approximation can be given because many of the parts will vary according to availability, regional price differences, and quality. Reasonable estimates of the total cost run from about \$200 to \$450.

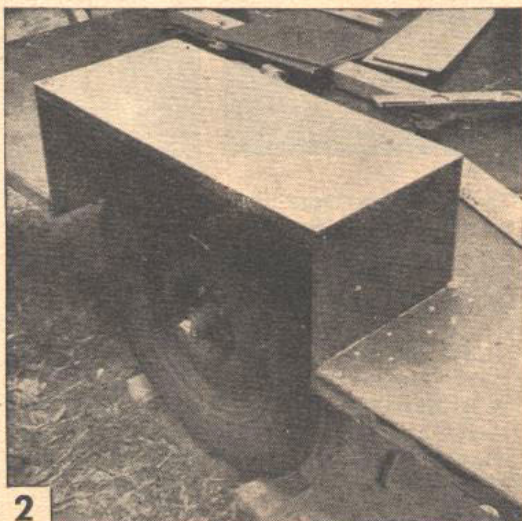
It will be helpful to have most of the materials on hand before beginning construction. The sizes of window, door, and vent openings will depend on the fixtures you can procure, and your axle and spring assembly will govern the size of the fender wells and the spacing of the frame members.

Hand tools are all you really need, but of course power tools will help a great deal. First, clear a space on the ground and lay out the frame as shown in a drawing on page 149. Smear all joints liberally with waterproof glue, make sure crosspieces are square with the stringers, and bolt the pieces together with carriage bolts and lag screws; the side members will have to be counter-

bored for the lag screws.

As shown in the drawing, the forward crosspiece between the wheel openings is centered exactly 4' from the front edge. Place a sheet of ¾" by 4' by 8' waterproof plywood sideways across this portion of the frame, saw off 18" from the length, and secure the plywood with glue and drive screws. Trim another piece to cover the remainder,

THE HOME AND WORKSHOP



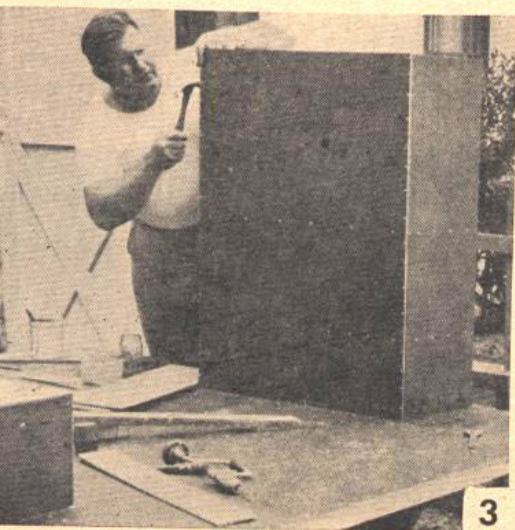


fasten it down, and saw out the wheel openings. Turn the frame over and install the undercarriage assembly. If you have the facilities for welding and metal working, you may be able to assemble a running gear from scrap, or renovate a junkyard bargain. Or you can purchase a complete undercarriage from a trailer-supply house. Figure 1 shows a typical installation.

Using the same $\frac{3}{8}$ " plywood, build up the housings over the wheels (Fig. 2). The one

next to the door is made quite high (Figs. 3 and 8) and will become a sideboard cabinet.

How well the trailer will track will depend largely on the accuracy of the tongue installation, and this, in turn, requires that the axle be perfectly square with the frame. Bolt a pair of two-by-four arms to the hitch-jack combination you have selected, and line up the tongue very carefully before notching and bolting the arms to the first two crosspieces. Assuming that the axle is



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4

squared, the tongue is aligned when the distance from the midpoint of the hitch ball to the point where one wheel joins the axle is exactly the same as the corresponding distance on the other side.

Side walls are made of $\frac{1}{4}$ " plywood. With the long edges placed together, lay out one 3' by 10' and one 4' by 10' sheet on a smooth floor. Chalk off the surface of the wood into 1' squares with a long straightedge. Transfer the pattern from the squares on the facing page, and fair up the lines with a long strip of flexible wood as shown in Fig. 4. Cut out the pattern with a keyhole saw, but don't spoil the waste you cut off, for this will be needed to make a jig. Using the cut pieces as a pattern, mark and saw the second wall.

Nail together the outline pieces as shown in the foreground of Fig. 5. Cut some scraps of two-by-twos and two-by-fours into 3" lengths, and nail them to the outline edges at 12" to 15" intervals (Figs. 6 and 7). Lay the jig on the ground and fasten to it with shingle nails $\frac{1}{4}$ " by 2" spruce strips from a point a few inches below the front floor line to a few inches beyond the rear floor line. Smear this first strip liberally with thick glue, and nail another strip to it, taking care to stagger the end joints. Continue adding laminations until five thicknesses have been built up. If you have a supply of small clamps, it won't hurt to use them while the glue is setting, but proper fitting and nailing should be enough.

After the glue has dried, hacksaw through the nails that fasten the first chine strip to the jig, leaving the nails right in the wood. Plane the edges until they are flat and smooth. Build a duplicate chine for the other wall.

Haul out the side walls and glue and screw them to the chines. Cut out the door opening on the right side, and save the pieces to make the door (Fig. 8). In the left wall cut an opening of proper size for the window you have purchased.

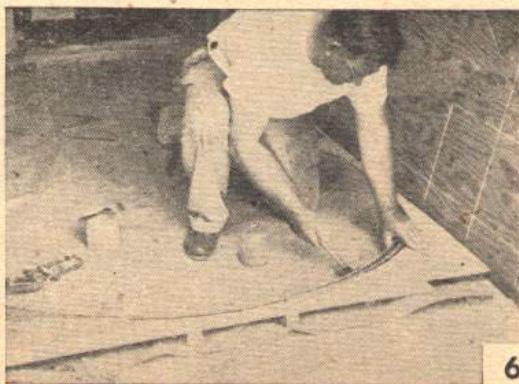
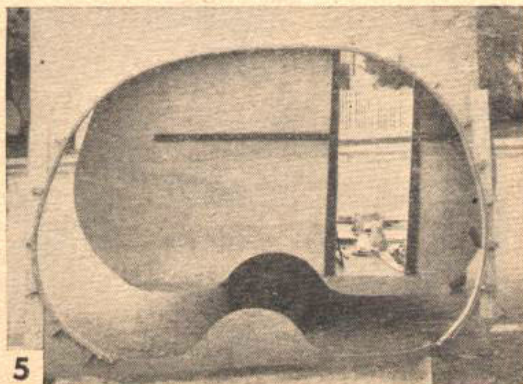
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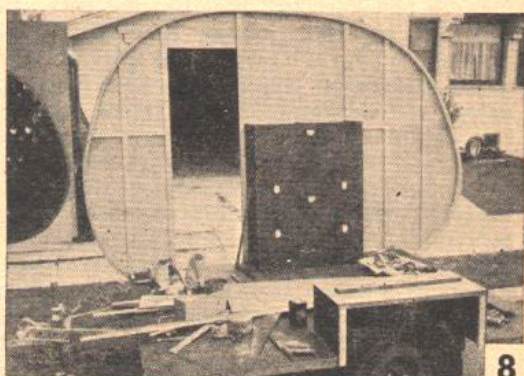
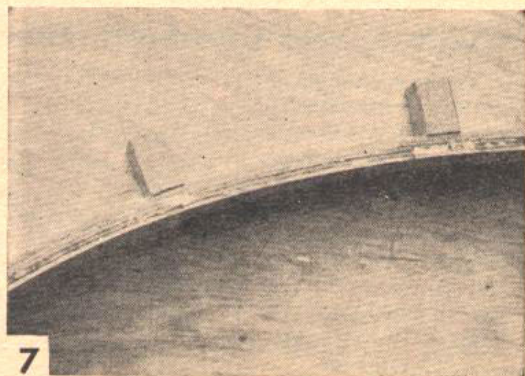
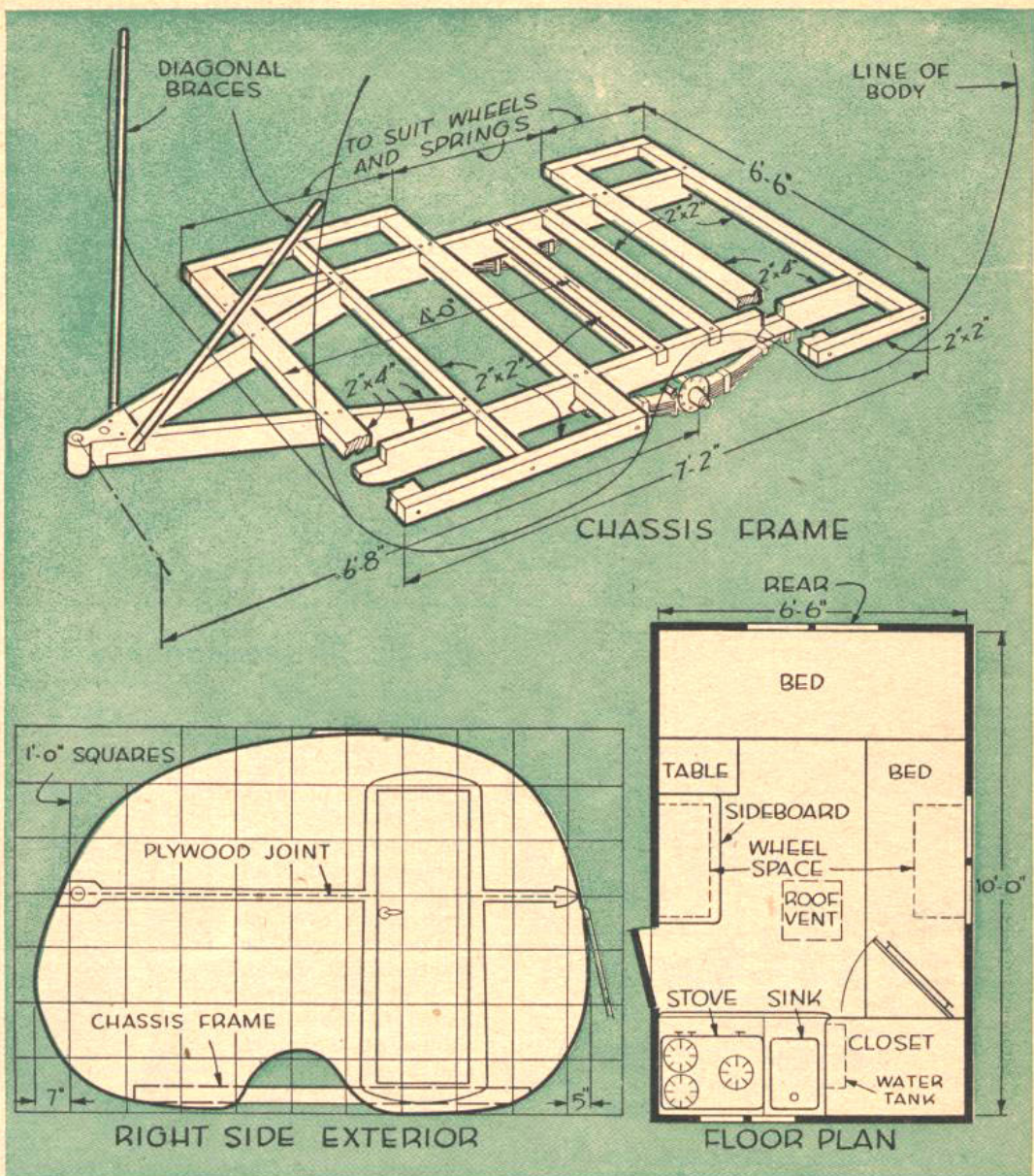
LIST OF MATERIALS

- 1 complete undercarriage, $1\frac{1}{4}$ " or $1\frac{1}{2}$ " straight or drop axle; approx. 66" tread. Wheels, tires, and tubes.
- 1 hitch and jack combination to take 2" by 4" V-tongue.
- 1 window 18" by 24", complete with screen.
- 2 windows 18" by 30", complete with screen.
- 6' wire screen 18" wide.
- 1 roof ventilator approx. 14" sq.
- 1 stove vent approx. 12" by 15".
- 1 curved roof jack to fit above vent.
- 24 flush-type cabinet hinges.
- 12 flush-type cabinet catches.
- 1 5-gal. gravity water tank with faucet.
- 1 25-lb. upright refrigerator.
- 1 trailer sink approx. 12" by 15" with waste plug and tail pipe.
- 1 5' combination hinge, continuous type, for door and screen.
- 2 piano hinges, $1\frac{1}{4}$ " by 6".
- 1 complete door lock, left hand.
- 1 stop and tailight combination.
- 2 clearance lights.
- 2 gross 1" No. 6 screws with brass collar washers.
- $\frac{1}{2}$ gross 1"-13 drive screws.
- 5 yd. 90" muslin (top).
- 1 roll felt padding (top).
- 1 gasoline stove, plate type.
- 3 electric fixtures with outlets.
- 100' No. 10 wire.
- 50' rubber-covered electric cable.
- 4' 4-conductor rubber-covered cable.
- 2 4-way male connectors.
- 1 4-way female connector.
- 4 lb. waterproof resin glue.
- 1 gal. spar or plastic varnish.
- 1 gal. canvas cement.
- 2 qt. top enamel.
- 1 mattress 24" by 6'5".
- 1 mattress 24" by 6'.
- 2' tubing, $\frac{3}{4}$ " dia.
- 2 rolls masking tape.
- 1 box $\frac{3}{4}$ " copper tacks.
- 20' rubber seal $3/16$ " by $\frac{3}{8}$ ".
- 4' safety chain.
- Assorted bolts, nails, screws.

LUMBER

- 2 pc. 2" by 4" by 16' clear pine, spruce, or hardwood.
- 1 pc. 2" by 4" by 8' clear pine, spruce, or hardwood.
- 4 pc. 2" by 2" by 14' clear pine, spruce, or hardwood.
- 5 pc. $\frac{3}{8}$ " by 4" by 8' plywood (floor, cabinets).
- 2 pc. $\frac{1}{4}$ " by 4" by 10' plywood (sides).
- 2 pc. $\frac{1}{4}$ " by 3" by 10' plywood (sides).
- 5 pc. $3/16$ " by 4" by 4' plywood (front, rear, and cabinets).
- 400' $\frac{3}{4}$ " by $1\frac{1}{4}$ " clear pine, spruce, or hardwood. (studs, cabinets, ribs).
- 20 pc. $\frac{1}{4}$ " by 4" spruce lattice (roof).
- 30 pc. $\frac{1}{4}$ " by 2" spruce lattice (chines).
- 2 maple dowels, $\frac{3}{4}$ " by 4' (front braces).
- 4 pc. $\frac{1}{2}$ " quarter-round moulding, 12' lengths.

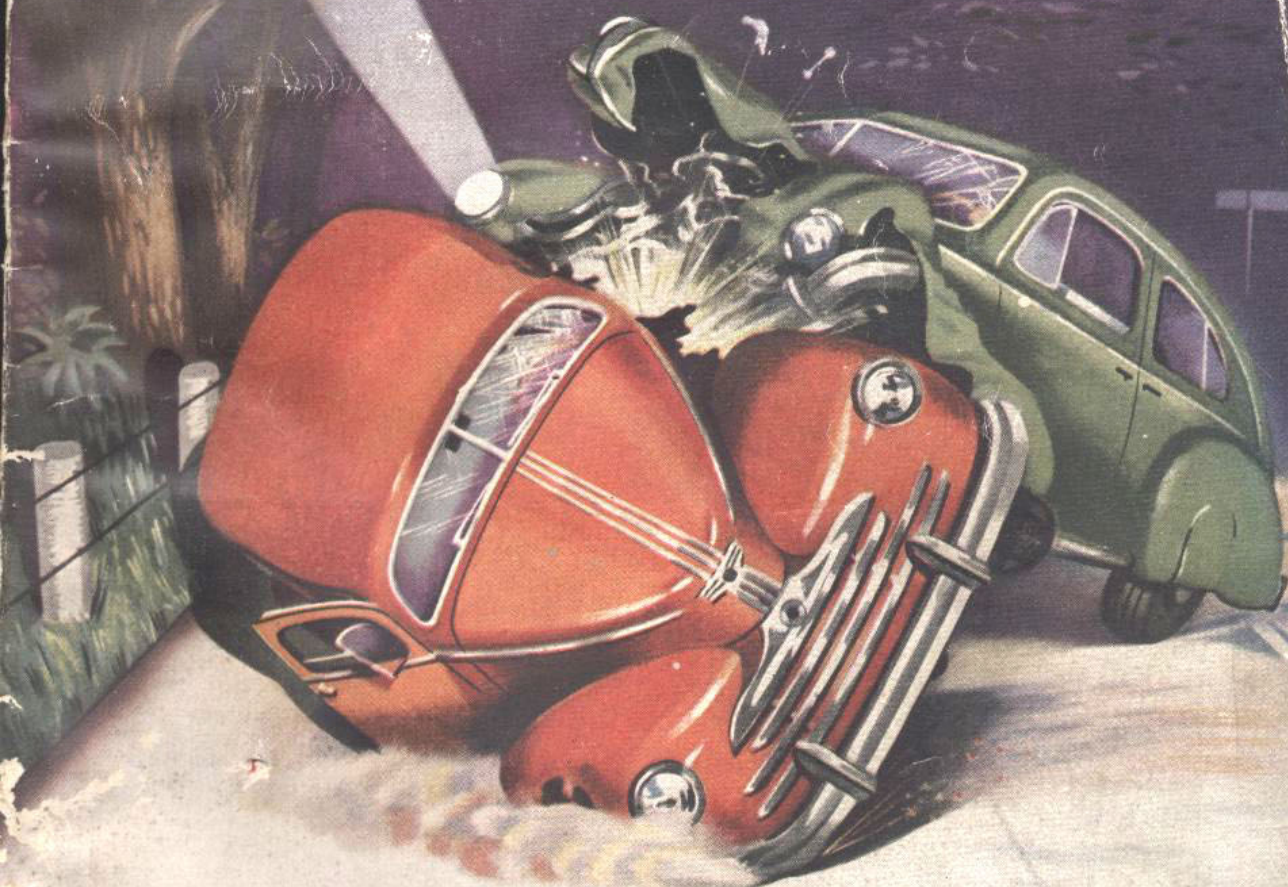




POPULAR SCIENCE

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How To Drive And Stay Alive

pp. 66—75

LESTER
FARMER



FINISHING YOUR WEEK-END TRAILER

By John Gartner

PART II

WHAT with spring getting under way, many people who last month passed up this invitation to build a lightweight trailer may now be ready to change their minds. It's not too late to start construction, but don't try to build your trailer from the information given in this installment alone.

Part I covered the construction of the chassis, walls, and chines. The next step is to stud the sides with $\frac{3}{4}$ " by $1\frac{1}{4}$ " strips of pine, spruce, or hardwood. Locate the studs as shown in Fig. 8 (March), and in the drawings on the facing page, using such fixed positions as floor edge (Fig. 9), door, and window openings as guides. Fasten all studs with glue and collared screws, and place those on the second wall exactly opposite the corresponding members on the first (Fig. 10).

On the outside of each wall you will need a batten strip to cover and reinforce the plywood joint. Make this of $\frac{3}{8}$ " plywood 2" wide. Using similar $\frac{3}{8}$ " by 2" strips, build a border around the door opening, leaving a $\frac{1}{2}$ " margin except on the hinge side. A door is then cut from the same plywood to fit this frame, and screwed to the $\frac{1}{4}$ " plywood pieces previously cut from the wall to form the door opening. With rubber stripping added, this construction makes a relatively dustproof door.

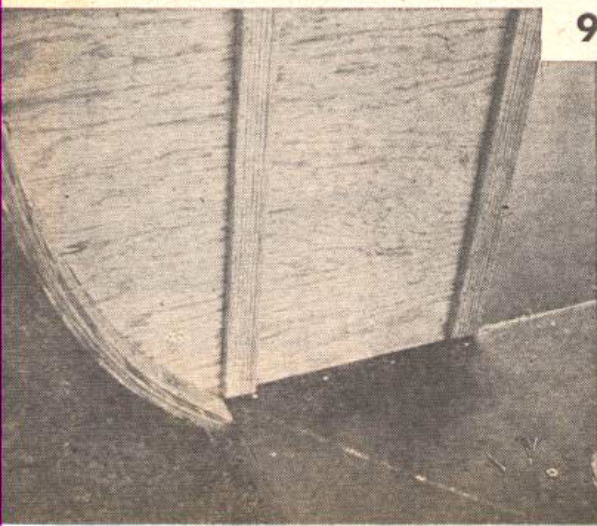
Mounting the walls to the frame is a job that may require some help from the neighbors. Glue and screw the right

wall to the sideboard cabinet over the wheel, and use whatever temporary bracing may be needed to keep the sides perpendicular to the floor. When the location of cross ribs is decided upon, square them across and notch them into the chines.

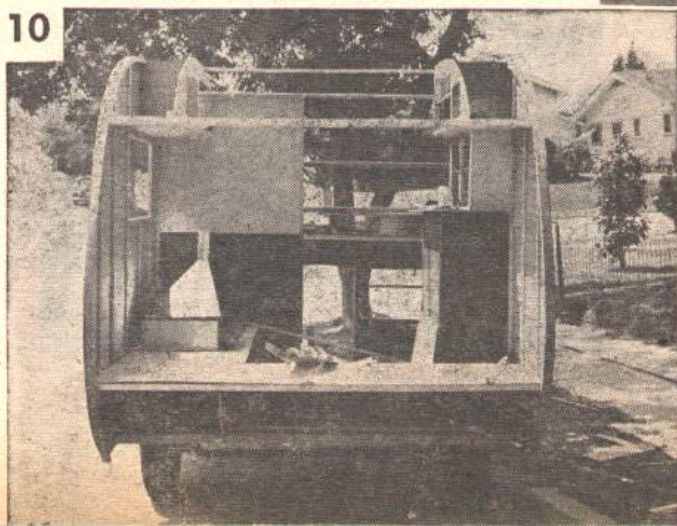
Plywood will be used for all cabinets, and edges can be given a finished appearance as shown in detail A. This detail is dimensioned for $\frac{1}{4}$ " plywood, and has to be adjusted to suit the $\frac{3}{16}$ " and $\frac{3}{8}$ " stock used for some of the cabinets.

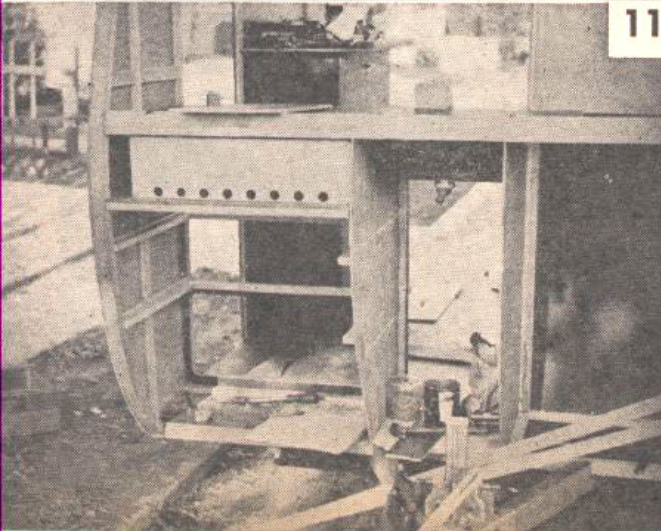
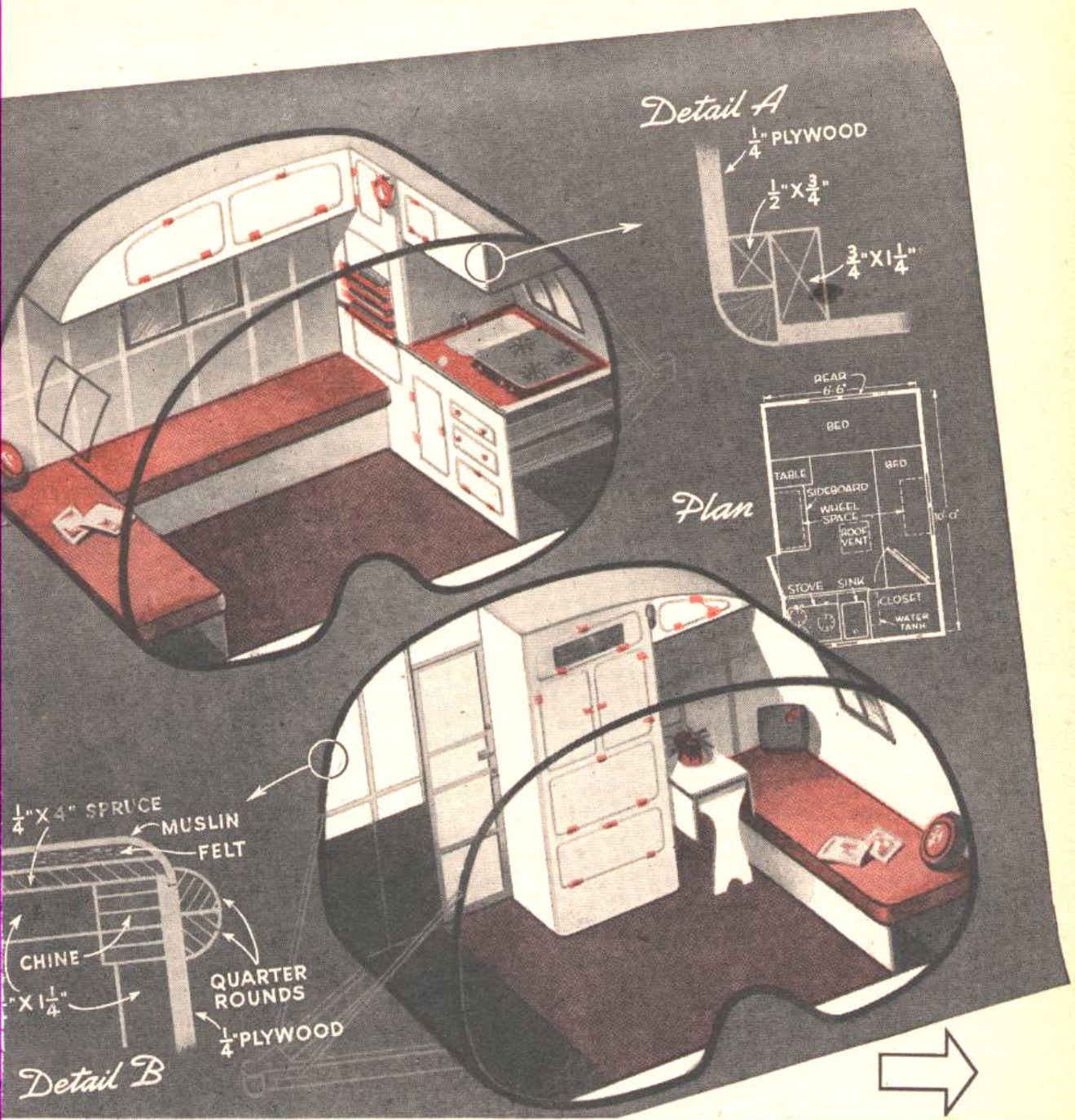
A sheet of $\frac{3}{8}$ " plywood 3' wide, fitted across the front and flush against the sides, forms the front of the galley. Fasten it securely to the forward door stud, and to the corresponding stud on the other side. Allow the top of the galley to overlap about 6" into the closet area to provide a shelf for the water tank. Before fastening the top, build a frame of the $\frac{3}{4}$ " by $1\frac{1}{4}$ " stripping to help support the sink. The stove may be treated in the same manner, or it may be let in slightly below the surface (Fig. 11). In the latter case, with a keyhole saw cut the plywood very carefully, and use the cut-out portion as a cover.

Build the front and side of the clothes closet of $\frac{3}{16}$ " by 4' by 8' gum plywood. Notch a rib into the chines across the top, where it will support the stove vent you have selected. Overhead cabinets, shown in Fig. 13, come next. Determine the shape of the longitudinal pieces by

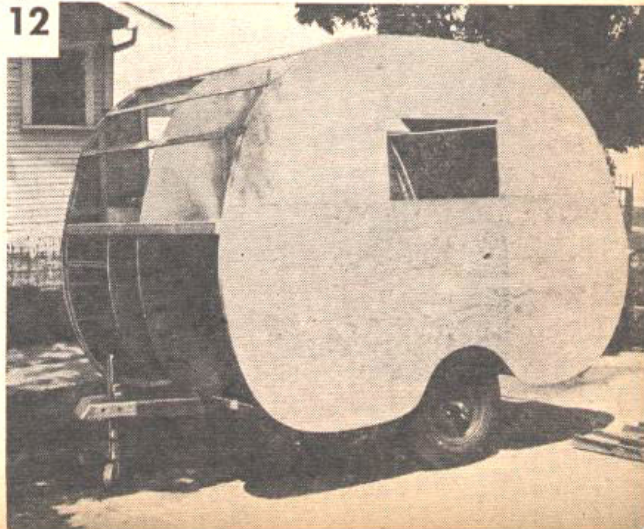


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11 12



marking them off against the corresponding chine curves. Use $\frac{3}{4}$ " stripping for the frames.

To make the side bed, set in a 12" piece of $\frac{3}{8}$ " plywood parallel to the left wall and about 22" away, using ribbing stock again as a frame. For the second bed, a similar piece of plywood has to be installed cross-ways at an equal distance from the rear wall. A piece of $\frac{3}{16}$ " plywood, 24" wide, is used as a top for each bed. Before fastening it to the bed frame, rip the top about 6" from the wall edge and install a length of continuous hinge. This arrangement will enable you to lift the cover without removing the mattress. Crosspieces, notched into the bed supports, will add strength.

Space two ribs across the highest portion of the walls to carry the ventilator you plan to use. Then rib the remainder of the top and ends at approximately 12" centers (Fig. 12). Ribs should be closest at points of greatest bend.

If your friends and family are still gleefully watching you work, call them into service for the next operation. First bevel off the lower edge of the front frame two-by-four. On a stiff cardboard pattern, cut tight notches around the tongue arms, and transfer the pattern to a sheet of $\frac{3}{16}$ " by 4' by 6'8" plywood. Gum is preferable to the fir panel for this use, since it shows less tendency to raise and weather under strain.

With two people holding the plywood, glue and screw it to the beveled two-by-four. Mark and bore the opening for the sink and icebox waste hoses, and fit the drainpipes before continuing to fasten the wall. Bend the plywood carefully to the shape of the wall, and fasten it to chine and ribs at short intervals (Fig. 14). This front wall should come up to the midpoint of the galley-top rib. Trim any excess beyond this point, and also trim the overhang flush with the sides.

A similar procedure can be followed with the rear wall, which reaches the middle of the window-base rib. Any remaining

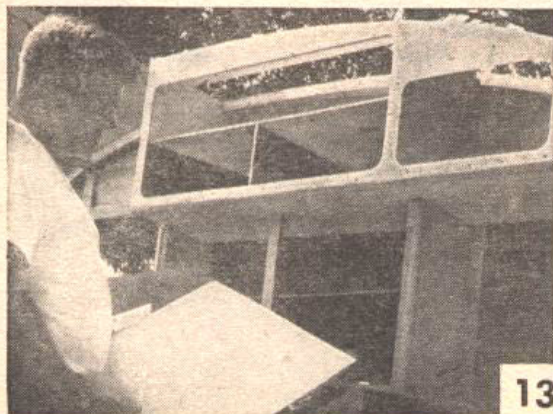
gaps on the underside or around the tongue can be patched with sheet aluminum.

For the roof and the remainder of the front and rear walls, use $\frac{1}{4}$ " by 4" spruce planks. Fit them smoothly along the ribs (Fig. 15), and secure them with $\frac{5}{8}$ " screws. Round off the exposed chine corners so that they will not tear the fabric roofing.

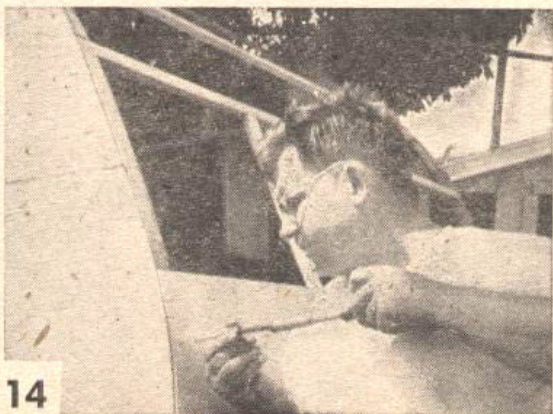
Before covering the top, fit the windows and ventilators, but do not install them. Cover the cracks between the roof planks with masking tape and secure a layer of felt padding on top of the planks with canvas cement. Stretch the roll of muslin sheeting tightly over the padded top, and fasten it in place with copper tacks placed about 1" apart. When cutting felt and muslin for the window and vent openings, leave about 1" of excess material which can be tacked tightly into the frames.

After installing these fixtures—preferably with waterproof calking compound—give the top a coat of canvas cement thinned with the solvent recommended for it by the maker. All exposed plywood on the trailer should now be sanded well and coated with a thin mixture of waterproof glue. Three coats of a good spar or plastic varnish will complete the weatherproofing job, and two coats of enamel take care of the appearance. Use two applications of varnish, enamel, or lacquer inside.

For minimum electrical wiring, fasten a female four-way connector to the steel member holding the hitch ball to your car. The four wires lead, through a rubber-covered cable, to the stop light, taillight, battery, and ground. A corresponding male plug is attached to a 3' section of four-wire cable, which goes to the interior of the trailer. Tail and stop-light wires (as well as a ground) are then run to the tail-stop combination that is bolted to the rear wall. Branches from this light are also run to the clearance lights. Battery and ground wires run directly from the connector to three conveniently located interior fixtures. By



13 14



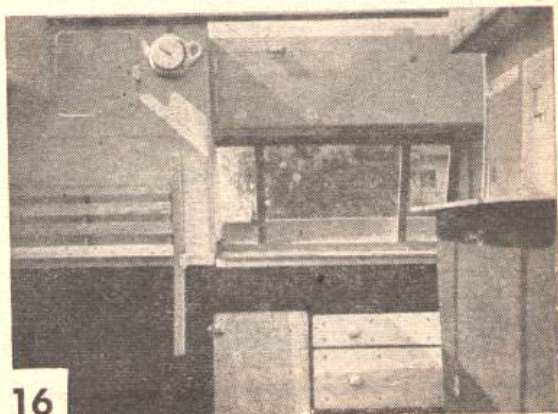
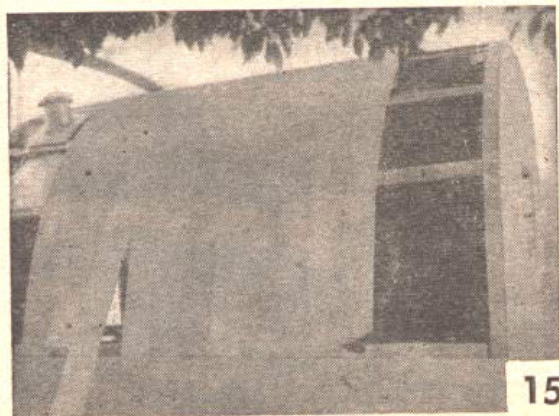


using regular screw-base bulbs and sockets, the same outlets may be made to change over to 115-volt service when available.

Front braces relieve vibration in the tongue and steady the trailer in motion. To make them, cut four 6" lengths of $\frac{3}{4}$ " electrical conduit or brass tubing, fit one on the end of a $\frac{3}{4}$ " dowel, and bolt it through the chine. Cut the dowel to proper

length, fit another piece of tubing, and bolt the end to the hitch. Install a duplicate brace on the other side.

With the hitch ball installed and the safety chain bolted to the tongue, you're ready to roll. And if your travels up to now have been limited to hotels and tourist camps, you are about to discover a brand-new freedom in vacation motoring.



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