Midget Trailer

For Reference Only… Do not use to build a trailer.
Check on Teardrop and Tiny Travel Trailers for up to date building information;
http://www.mikenchell.com/forums

Streamlined

"Tear-drop" body provides sleeping quarters for two adults on a full-size bed, besides storage room for six or eight cots or sleeping bags to accommodate as many persons on a week-end trip. There is a large cabinet for food supplies, a sink with running water, stove, worktable, and a cork-insulated icebox with a water-sealed drain. The trailer body is only 9 ft. long, 5 ft. 9½ in. wide and the weight complete ready for the road is approximately 960 lbs. The trailer is balanced so nicely that one man can move it about easily when detached from the car. Although material costs will vary, $125 will be a fair average.

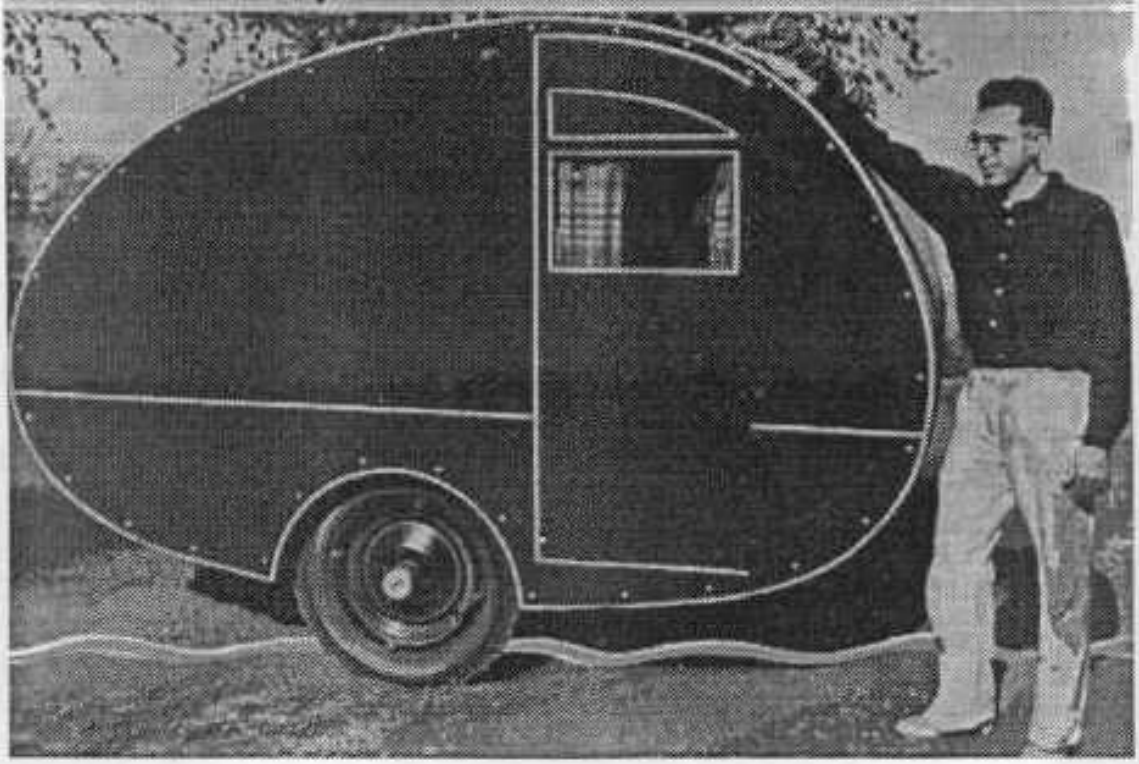
Part I—By CHARLES W. BRENTNER

GLANCING casually at this little job gives you the impression how much can be done in a small space, how smart it appears in modern streamline design, and how easy such a small trailer should be on your car. Going through the photos, constructional drawings and details as given in this article, you will agree that it is surprisingly complete in its accommodations and provides all the comforts on the road that the average person demands. While it is classed as a midget in comparison with the size of most house trailers, it is just the thing so many people want for greater enjoyment of week-end or vacation trips. Being light in weight, you will have no cause to worry about undue clutch and rear-axle troubles due to excessive wear. Also, there's no sidesway which is often responsible for uneven tread wear on the rear tires of the towing car. This elimination of sidesway is due to the manner of springing the trailer body to the axle.

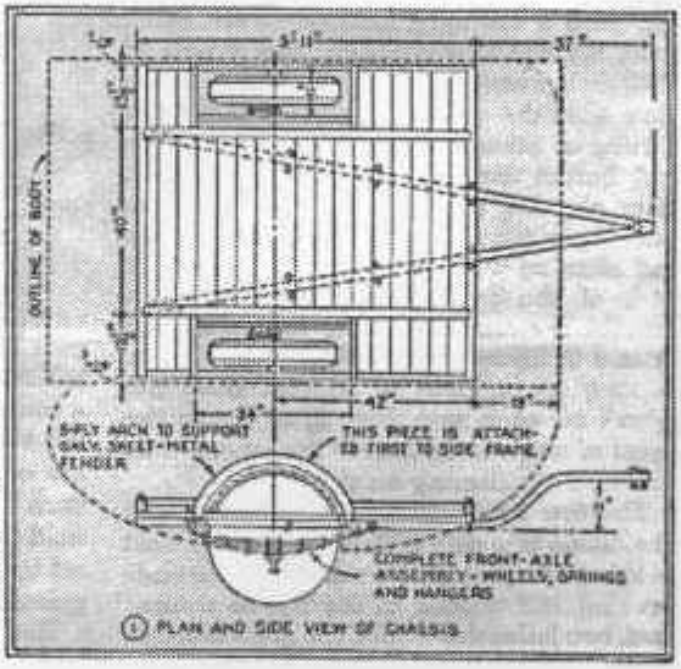
The material list gives the general sizes and the quantities of stock and incidentals required for the construction of the chassis and body frame. Of course, allowances are made on the various items for cutting and fitting. In the matter of woods designated in the list, substitutions can be made, if

MIDGET TRAILER

serves your vacation needs



desired, but it should be kept in mind that the body has been designed for maximum capacity in the minimum of space. For this reason the stock sizes of the chassis and body framing have been worked out carefully to give the greatest strength possible with the fewest number of parts and still keep the weight under a given figure. If it happens that you can't get spruce for the parts as specified, pine is a substitute, but in equivalent sizes lacks the strength of the former wood. Oak gives a sectional strength equal to spruce but adds to the weight. In this latter instance, a good compromise would be the use of oak for the chassis frame and pine for the body framing. Adding metal corner plates and iron angles attached with screws will greatly



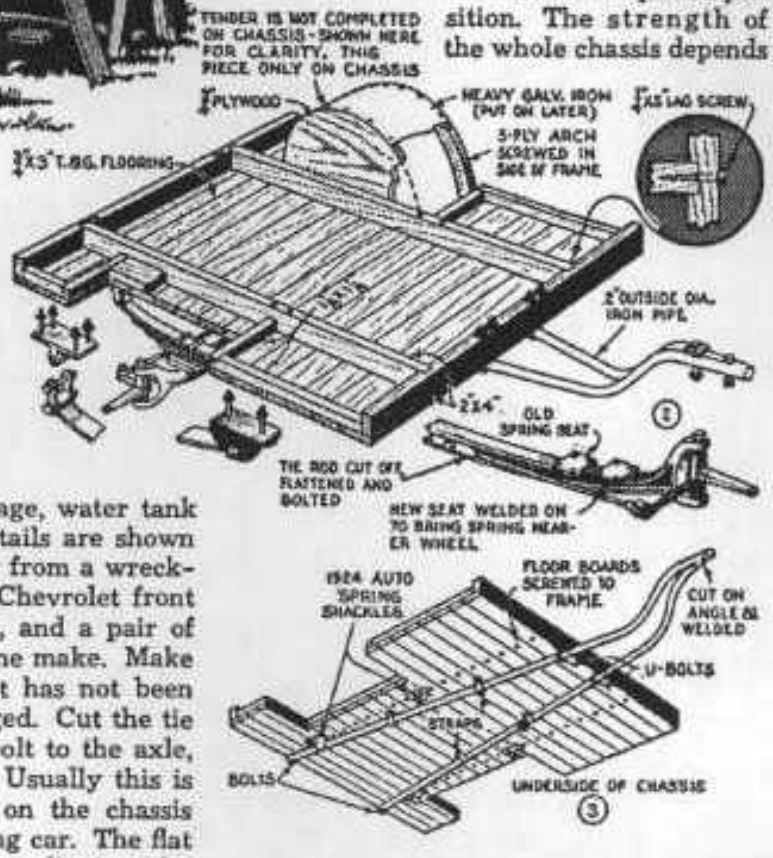
① PLAN AND SIDE VIEW OF CHASSIS

strengthen those parts that are made of pine.

Chassis: General dimensions of the chassis are given in Fig. 1. You will note that the floor area is relatively small, in fact, passengers stand only on a small portion inside the door when getting in or out or putting on shoes while sitting on the bed. The remainder of the floor supports baggage, water tank and battery. Assembly details are shown in Figs. 2 and 3. First buy from a wrecking yard a standard 1924 Chevrolet front axle, springs and shackles, and a pair of 1930 disk wheels of the same make. Make sure that the axle you get has not been sprung or otherwise damaged. Cut the tie rod, flatten the ends and bolt to the axle, after aligning the wheels. Usually this is best done after installing on the chassis and aligning with the towing car. The flat ends of the tie rods, after aligning the wheels, are clamped to the axle and then drilled to insure true register of the holes. A new spring-seat is welded near the wheel on each end, Fig. 2, to bring the point of suspension nearer the wheel, thus preventing sidesway on the road.

The tow bar, Fig. 3, is in the form of a vee, made of a pair of 2-in. iron pipes bent to an upswing at the forward end, the ends beveled and welded at the tip, as shown; then two holes are drilled for bolts through the trailer hitch. The latter should be of a standard make having a ball-and-socket fitting. At this point provision should be made for running the lighting and taillight wires through the left-hand pipe.

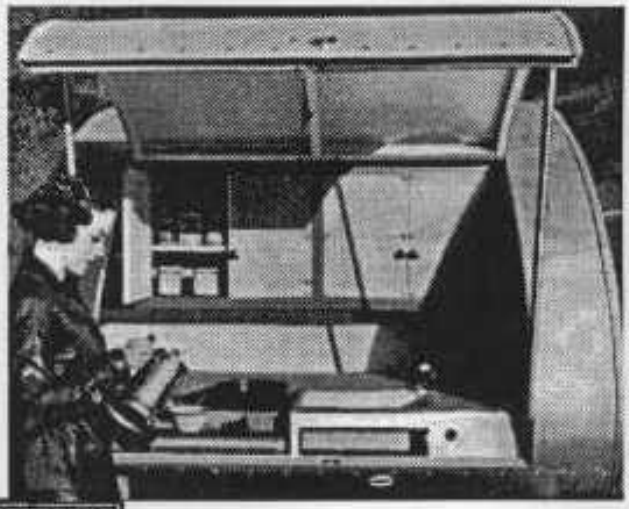
Now build the chassis frame as shown in Fig. 2, screwing the tongue-and-groove floor boards to the 2 by 4-in. cross members while the frame is upside down. Next, install the tow bar and the spring shackles. In making up this structure, there are several points to watch. Make certain that it is square and that it remains so until you get all the floor boards screwed in place. Tack on temporary braces, if necessary, to hold it in the squared position. The strength of the whole chassis depends

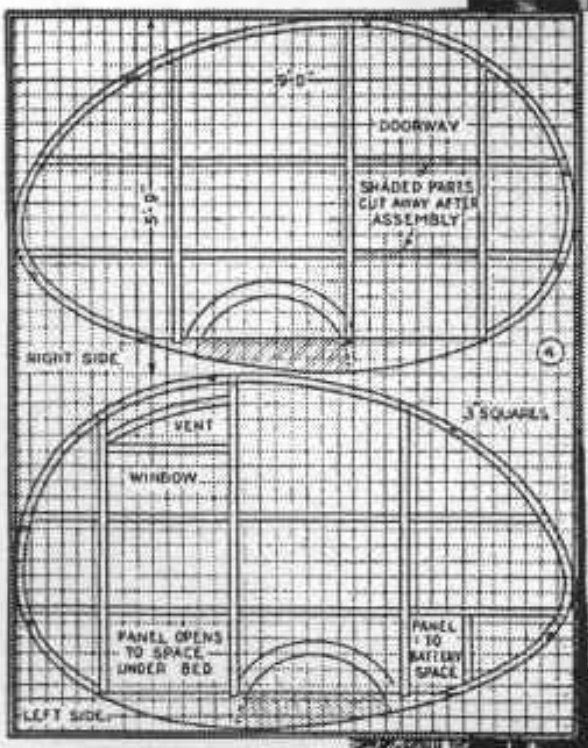


on the care with which you assemble this part of the structure. The housed joints joining the 2 by 4-in. members should be a snug fit. If the joints are an imperfect fit, the vibration and strain to which the parts are subjected will cause them to loosen to such an extent that the lag screws will not hold effectively. Turn the chassis over and set up on sawhorses to keep it steady while going ahead with the construction.

Body frame: As specified, spruce is the best wood to use for the body frame. If it

is not available then use selected white pine. Practically all frame members are 1⅛ by 1½ in., the curved members, Fig. 4, being bandsawed from 8-in. boards. To simplify the work, lay out a squared diagram full size on the garage or workshop floor, Fig. 5, and outline the entire frame. It then will be an easy matter to get each piece in proper proportion and location. Note that right and left frames are practically the same, Fig. 4, and are altered simply by cutting away different portions in each. This method keeps



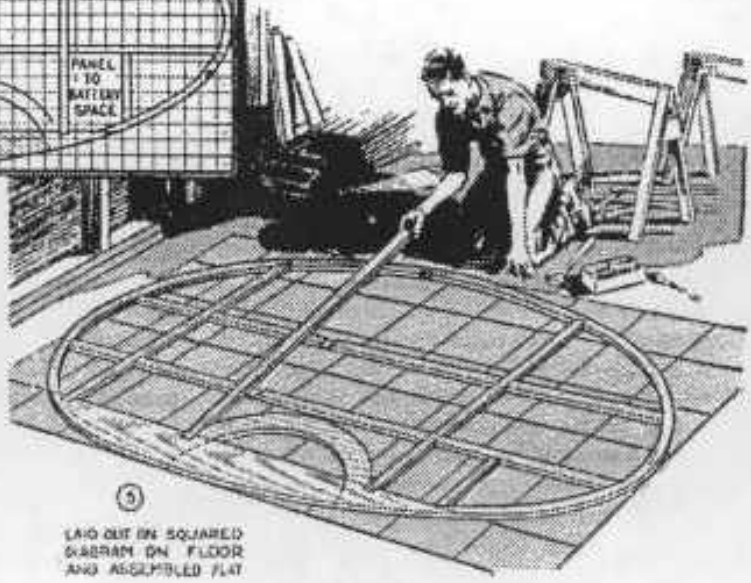


MATERIAL LIST

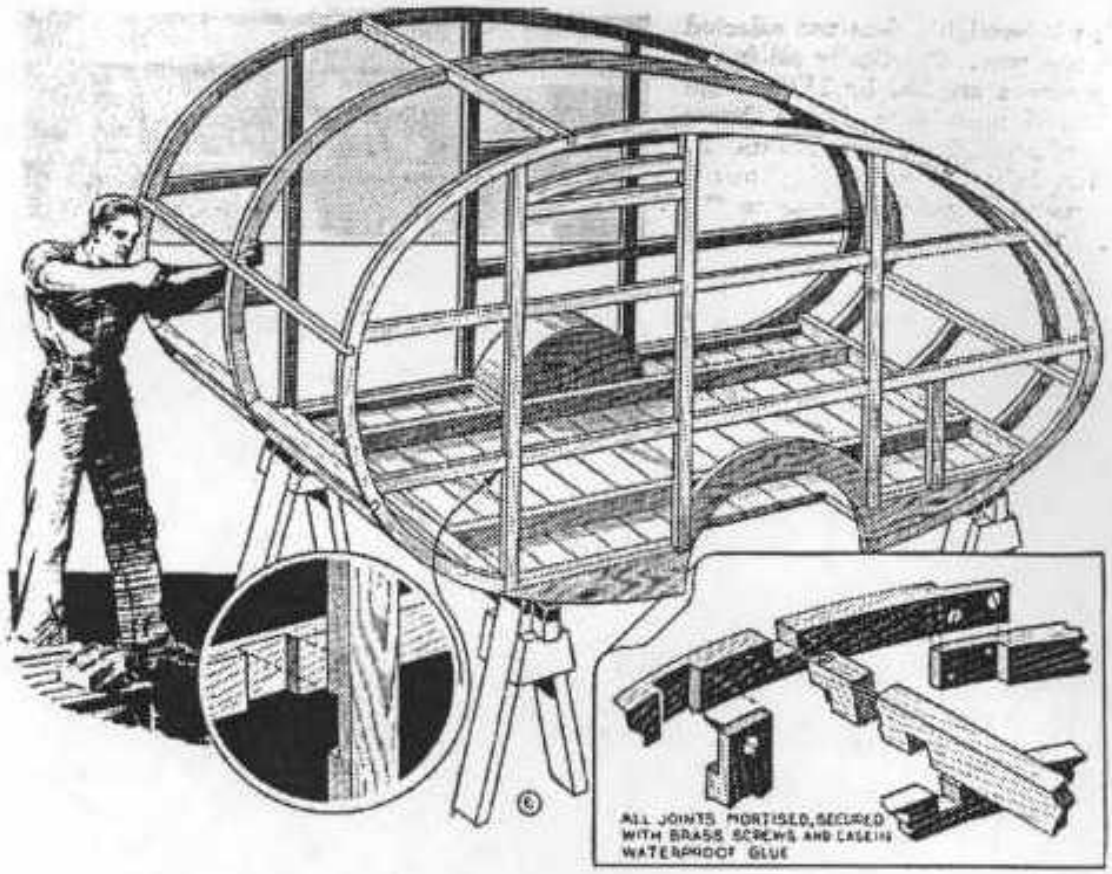
1—1924 Chevrolet front axle, complete with springs and shackles
2—1930 Chevrolet disk wheels and tires
2 pcs. 2-in. iron pipe, 9 ft. long—tow bar
1 standard trailer hitch
36 sq. ft. T & G flooring (¾-in. net)
3 pcs. 2 x 4-in. x 8-ft. pine—chassis frame
96 lineal ft. 1⅛ x 1½-in. (net) spruce—framing
10 pcs. ⅛ x 8-in. x 5-ft. spruce—curved members
1 pc. 30 x 30-in. spruce—fender supports
1 pc. 15 x 36-in.—for removable panels on left side to storage and battery

the frame true until entirely assembled. The finished job, with the frames joined by the crossbeams, will appear as in Fig. 6. Casein glue and brass screws are used throughout.

In assembling these frames keep in mind that strength depends largely on the accurate fitting of the joints. The lower details in Fig. 6 show the variations in half-lap joints used in the assembly. As you see, there is no cross bracing on the framework itself. Rigidity depends entirely on the strength of the individual members, the accuracy of the joinery and the sheathing material which goes over the frame-



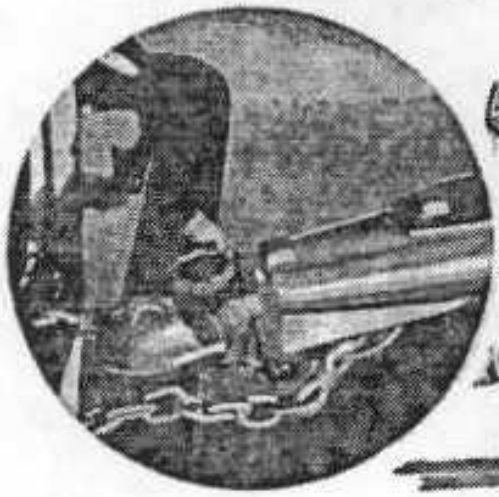
LAID OUT ON SQUARED DIAGRAM ON FLOOR AND ASSEMBLED FLAT

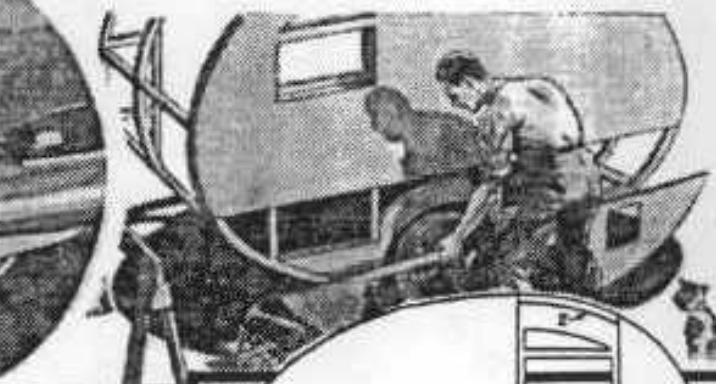


work. For the purpose of clarity the body framework is shown assembled in Fig. 6, but in actual procedure the side frames are first used as templates to lay out and cut the sheathing, which is of ⅛-in. hard-pressed board. This will be covered in Part II, which follows in an early issue. The center member, Fig. 6, is cut to the same curve as that of the side frames. It is assembled full length and after installing a header, a portion of it is cut away at the rear of the body and used as a center rib for the flush lid which closes the "kitchenette." Now, while you have the construction at this stage, is a good opportunity to paint all the parts. Use a priming coat first, thinned so that the wood will absorb a good portion of it. Then follow with at least one coat of full-bodied paint in the color desired. Be careful to work the paint well into the joints, particularly the openings between the floor boards, in fact, it's a good idea to prime the tongue-and-groove edges of the floor boards before you lay them. Also prime the top edge of the chassis frame members. These latter precautions will prevent absorption of moisture. If you decide to prime the side members remember that certain parts will be exposed in the finished job. So it's well to smooth up with sandpaper before applying paint.

(To be continued)

MIDGET TRAILER...



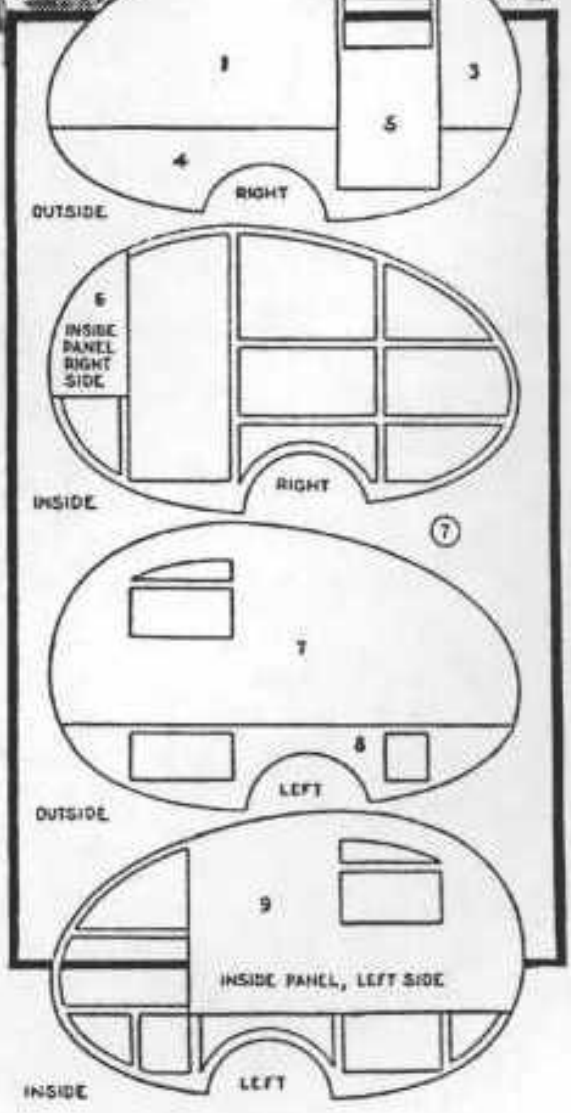


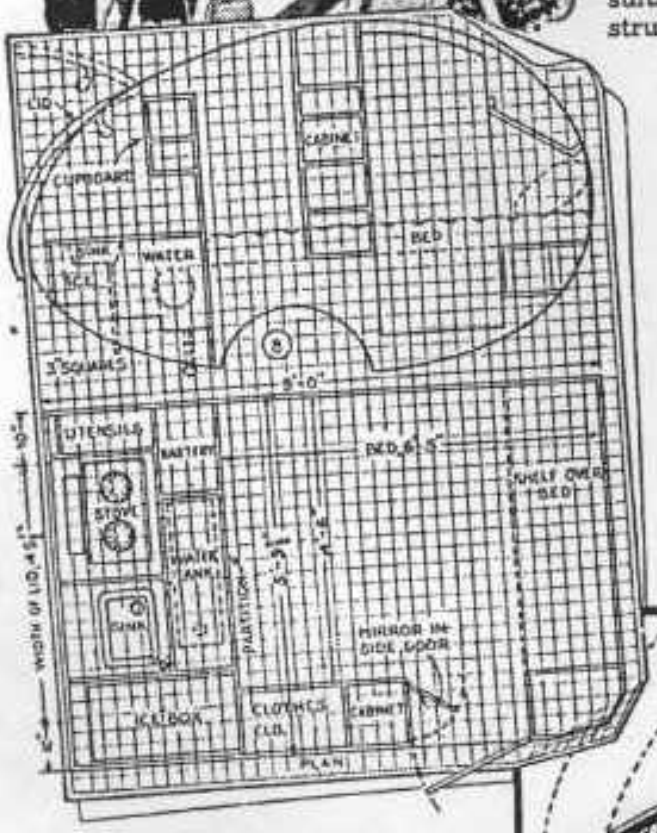
PART II—Sheathing, Interior Furnishings, Kitchenette

By CHARLES W. BRENTNER

WEATHER-TIGHT Sheathing: Now that you have the chassis and the side frames finished, you use the latter as templates in laying out the side panels to size. These are cut from ⅛-in. tempered hard-pressed board. Before you cut the board, note carefully the number and arrangement of the pieces on the right and left sides of the body as in Fig. 7. Five pieces are required for the right side frame on the outside, but only one small piece, No. 6, is needed for the inside. The balance of the exposed frame is covered by a cabinet and clothes closet. Only two panels are required for the exterior of the left side and one large panel for the interior.

An easy way to cut hard-pressed board by hand is to clamp the side frame to the large sheet and cut with a fine-tooth compass saw or with a hacksaw blade, reversing the blade so that the teeth cut on the up stroke. Smooth the edges of the board after sawing with a block plane. This done, you lay the panels aside while you assemble the body frame and the fenders over



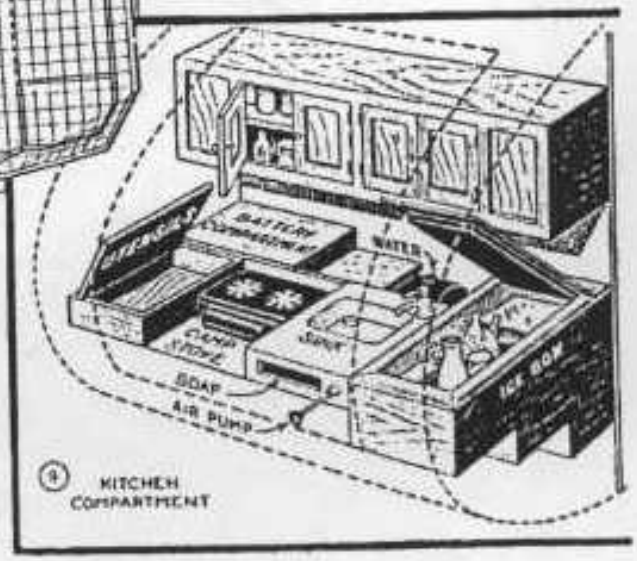


squared up, you're ready to put on the sheathing. This is fastened with oval-head screws and washers spaced approximately 6 in. apart. Metal-trim moldings finish up this part of the job.

Sleeping Quarters: The two details in Fig. 8 give sizes and locations of the built-in equipment. A standard bed spring and mattress unit is supported by two cross members, but before this is shoved in through the rear (the kitchenette partition is not yet installed) the cabinet and clothes closet on the right or door side are built in, in the positions shown in Fig. 10. A small chemical toilet is built forward, just inside the door. Thin wallboard, supported by suitable framing, is used in the construction of this equipment. The rear partition, Figs. 8 and 10, is also of the same material.

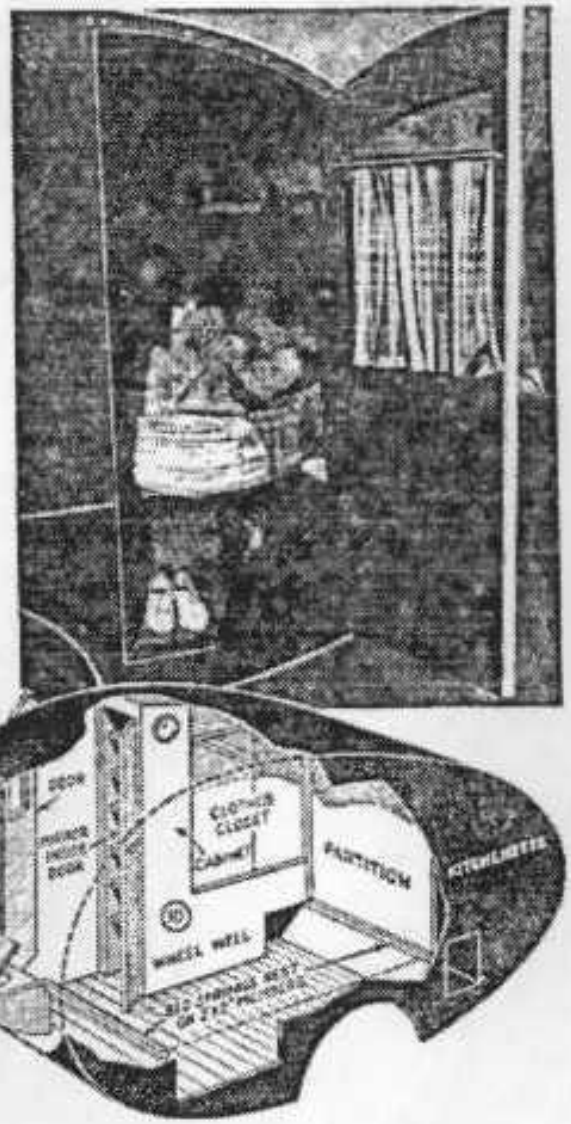
Kitchenette: After installing the partition, the kitchenette can be built in the individual's favorite method of cabinet work. In the original, Fig. 9, the units were built separately and then set into the rear compartment, the perspective view showing the general arrangement. When not in use, stove, sink and water-tank compartment are covered with hard-pressed board in tile pattern, making a neat, clean table in appearance.

Icebox Is Cork-Insulated: A large icebox is built into the original trailer, the details being shown

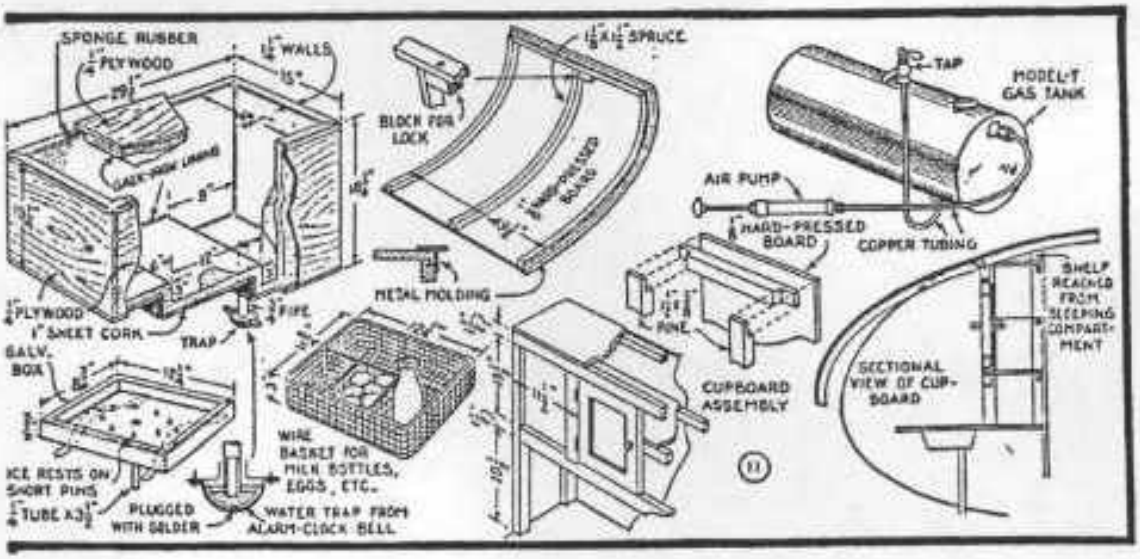


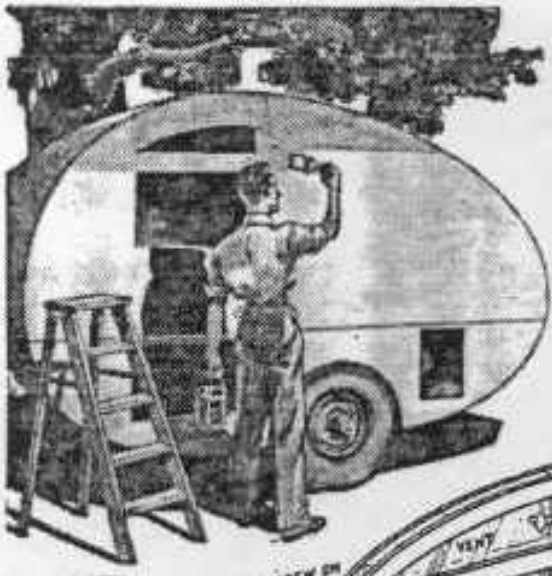
the wheel wells. The latter are finished with semicircular pieces of plywood screwed to the inside of the wheel-well openings and an arch, made of the same material, is built into the side frame on each side over the well. Then the galvanized-iron fender is fastened over this with screws. These parts are shown in place. With the frame assembled and

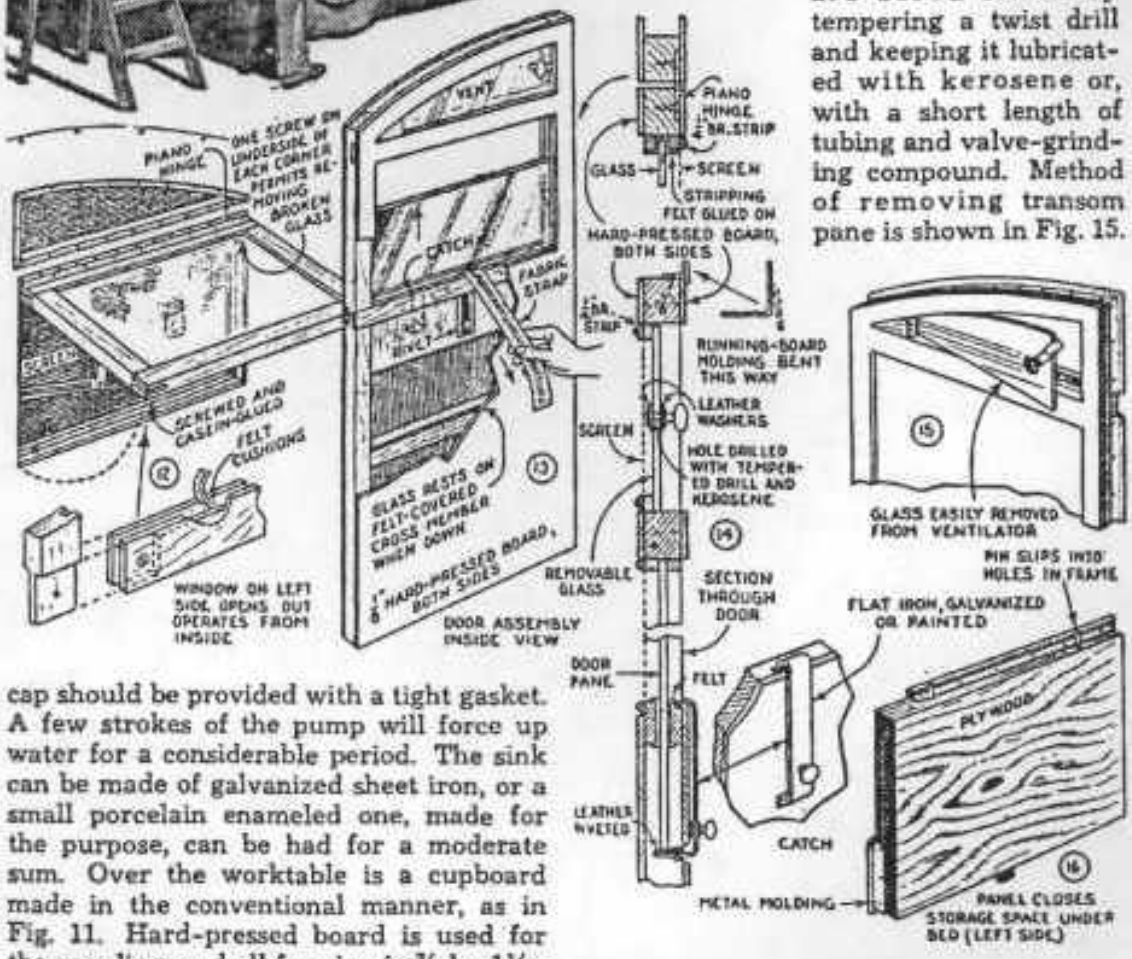
in Fig. 11. As you will see, a stepped-box of plywood is made first and lined with 1-in. sheet cork, then a galvanized sheet-metal lining with corners soldered is made to fit over the cork insulation. Around the edge of the lid is a strip of sponge-rubber weatherstrip to make a tight seal. The drain pipe is fitted with a water-seal or trap made from an alarm-clock bell. This prevents loss of cold air from the box. The ice tray shown is especially adapted for trailer use, being fitted with a pair of stiff spring feet, and with nail ends about ½ in. long soldered to the sheet-metal bottom so that the ice melts down upon them and will not slide about. No nails should be used in assembling and fastening either the icebox or the other kitchenette units in place. Use screws instead. They hold better than nails of any size under the conditions of vibration to which these parts are subjected. Not only that, but units fitted into close quarters such as these can always be removed intact if assembled and fastened with screws of proper size. It's a good idea to anchor the stove and sink securely, otherwise these units might be thrown about loose in the compartment should the trailer be called upon to travel over a rough road or steep mountain trail.



Water System and Sink: A Model-T Ford gasoline tank is fitted out for an air-pressure water system, Fig. 13. The filler





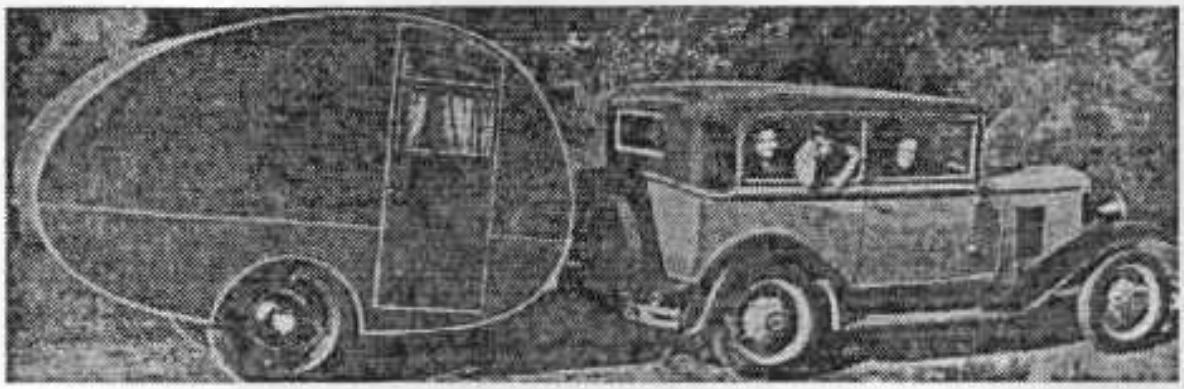


has a screened transom ventilator fitted with a removable glass pane, a screened window that can be lowered, a lock, window latch, and curtain rod. The framing is the same as the rest of the body, and is covered both sides with ⅛-in. hard-pressed board. Fig. 14, the sectional view, illustrates the inner construction, while Figs. 13 and 15 show perspective views of the door assembly. The sliding window moves in felt-covered slots and the pane is otherwise protected against rattling and chafing, as the drawings will show. Holes for the rivet and handle in transom pane, Fig. 15, are bored either by tempering a twist drill and keeping it lubricated with kerosene or, with a short length of tubing and valve-grinding compound. Method of removing transom pane is shown in Fig. 15.

cap should be provided with a tight gasket. A few strokes of the pump will force up water for a considerable period. The sink can be made of galvanized sheet iron, or a small porcelain enameled one, made for the purpose, can be had for a moderate sum. Over the worktable is a cupboard made in the conventional manner, as in Fig. 11. Hard-pressed board is used for the paneling, and all framing is ¾ by 1½-in. pine. The top of this cupboard serves as a shelf for the sleeping compartment on the other side of the partition. Construction of the lid for the kitchenette is similar to that of the body, and details are given in Fig. 11. The edges are bound with aluminum running-board molding.

Door Has a Transom: A great deal of convenience is built into the one door. It

These panes are cut from plate glass with an ordinary glass cutter, and the edges smoothed with an oilstone. The window on the left side is swung out by a bracket on the inside, working through the screen. The transom vent above this is the same as in the door, and the frame assembled as shown, Fig. 12. Also on the left side are two removable panels, one to give access



MATERIAL LIST

SHEATHING

1 pc. 4x10 ft. ⅛-in. tempered hard-pressed board
2 pcs. 4x12 ft. ⅛-in. tempered hard-pressed board
2 pcs. 3x12 ft. ⅛-in. tempered hard-pressed board
5 pcs. 4x8 ft. ⅛-in. tempered hard-pressed board
2 pcs. 4x12 ft. ⅛-in. tempered hard-pressed board
1 pc. 4x8 ft. hard board in tile pattern for kitchenette worktable

MISCELLANEOUS

4 pcs. windshield glass, sizes in drawings
1 pc. 12 in. x 8 ft. copper screen for windows
1 bracket for opening left window
12-ft. brass piano hinge, door window, and kitchenette lid
6 cupboard latches, 6 pr. hinges
1 trailer sink, drain for sink, 1 stove
8 sq. ft. galv. sheet metal for icebox lining
8 sq. ft. 1-in. sheet cork for icebox lining
Tubing for drain
1 pc. galvanized sheet metal 3x4 ft. for fenders
4 locks, to door, kitchenette and two side panels
1 set bed springs and mattress

SCREWS, BOLTS, ETC.

2 U-bolts for tow bar
1 gr. 1½-in. round head No. 8 screws and 200 washers to fit
1 gr. ¾-in. No. 6 flat-head screws
1 gr. ⅜-in. No. 8 R.H. screws and 200 washers to fit
2 gr. 1-in. No. 8 oval-head screws
1 gr. ⅜-in. No. 5 screws
1 gr. 1¾-in. No. 8 R.H. screws and 1 gr. washers to fit
1 gr. 1½-in. F.H. No. 8 screws
1 gr. 1½-in. F.H. No. 8 screws
2 gr. ½-in. No. 5 F.H. brass screws

ELECTRICAL

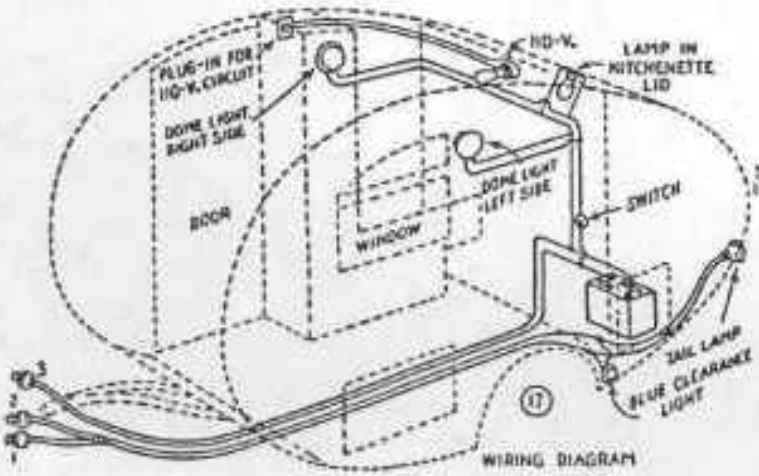
36 ft. insulated wire
2 dome lights for 6-volt current
1 6-v. socket and bulb, kitchenette
2 sockets and bulbs for 110-volt current
1 plug-in socket for 110-volt current
2 plug-in sockets for 6-volt current
1 two-way switch
1 storage battery
1 tail light, 1 blue clearance light

FINISHING

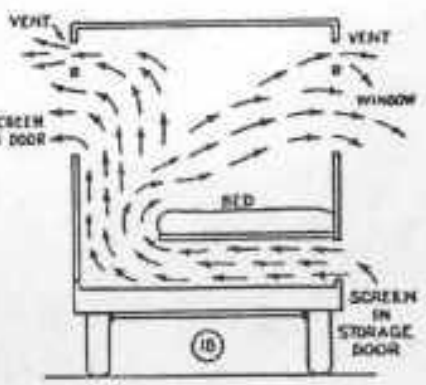
94 ft. aluminum running-board molding
12 ft. ⅛-in. brass strip for over screens
12 ft. half-round molding
Paint, spar varnish, casein glue

to storage space under the bed, the other to the battery box. Each is fitted with a lock, and with two pins at the top that set in holes bored for the purpose, Fig. 16. The larger panel is taken out in warm weather, in camp, and a screen substituted, giving excellent ventilation as in Fig. 18.

Wiring: Three circuits are installed for lights in the original trailer, Fig. 17. One is a plug-in for 110-volt lines, while the other two are for 6-volt lines from car and from storage battery in the trailer. The wiring can be extended to any point in the trailer for convenience.



WIRING DIAGRAM



COMPLETE VENTILATION