

An ideal Unit for the Small-car Owner
By J. E. Gibson

The caravan described was designed to meet my specific requirements in regard to lightness and mobility.

The usual width for a caravan is not less than 6ft., but in my case the driveway to my house limits the van described to 5ft. 3in. This is not, however, a disadvantage as it enables one to pass easily through the inevitable narrow farm gate, which always seems to be at the entrance to the most desirable site.

The interior layout has, therefore, been arranged to suit the narrower than usual width, and has proved in practice very satisfactory.

Chassis

There is no separate chassis in this design. For a van of this size the floor and side members form a rigid structure and reference to Fig. 2 will show that, with the method of independent wheel suspension used, the weight, is carried directly by the main 3in. x 2in, longitudinal members, attached to the 5in. x 3/4in tongued and grooved floorboards.

Features of this design are the low overall weight, maximum rigidity for the minimum material,



Fig 1 - View of the completed van.

wider than the wheel track, which results in freedom from roll and very good towing qualities.

The main through steel member consists of two 2in x 2in, 3/16 in angles welded together to form a box section, bolted to every other floor board by 5/16in cup head bolts, and

angles and bolts. Lateral stiffness is provided by 1in x 1in x 1/8in angles bolted to the front of the box section main member, and attached to the 3in x 2in side members, just in front of the wheel frame brackets.

A spring-loaded tow bar of the eye type is fitted, which, in the usual way operates the lever connected to the wheel brakes through the medium of an equalising pulley and wire rope during the over-run. This lever is also fitted with a ratchet for locking the brakes when parking, and a small jockey wheel is provided for ease in manoeuvring. Details of the layout are given in Fig. 3.

A simple type of corner jack is shown in Figs. 4 and 5. These have the virtue of being light, and have proved satisfactory in use, provided

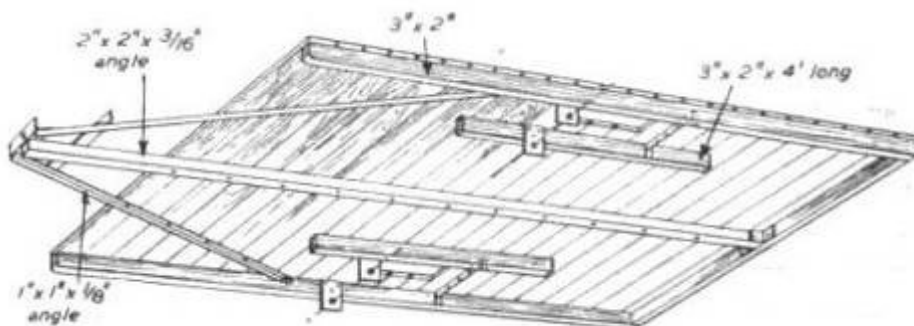


Fig 2 - view of underside of floor

with a wide spring base, actually secured to the rear cross member by

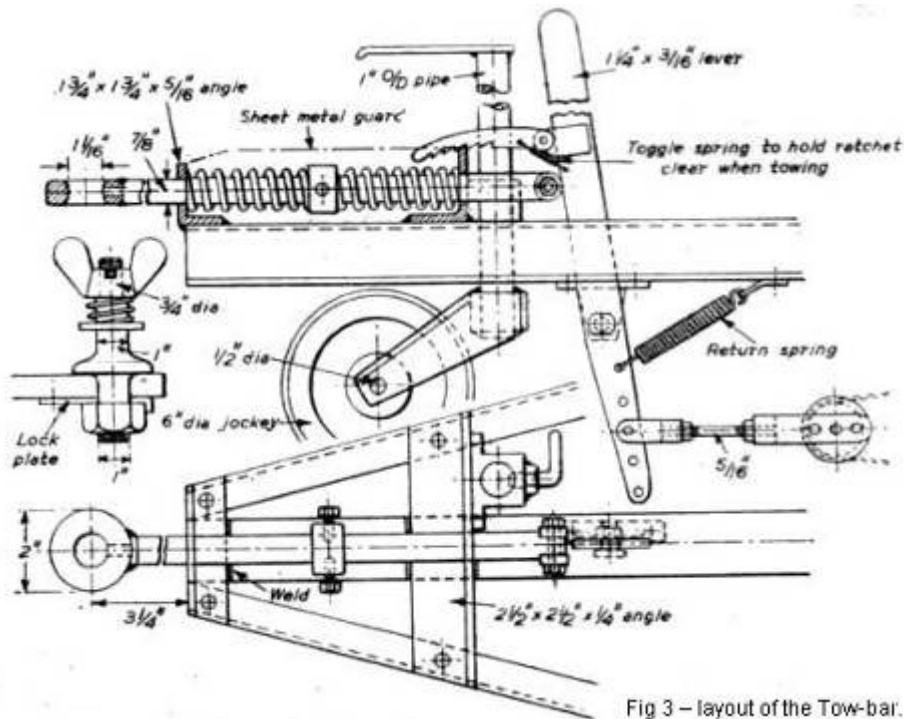


Fig 3 - layout of the Tow-bar.

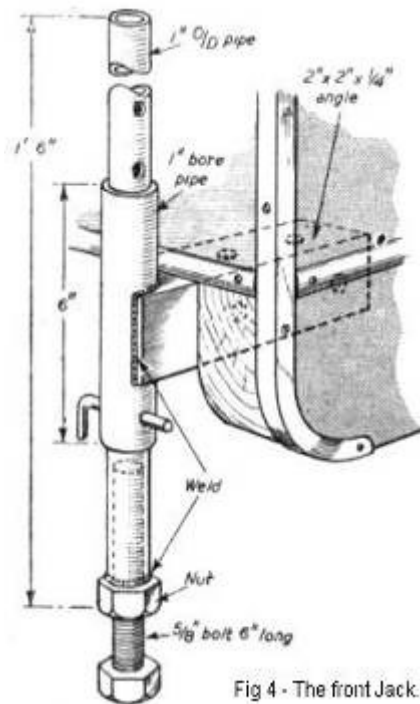


Fig 4 - The front Jack.

a reasonably level pitch is found. No doubt the screw - operated type would be an advantage, but the type described were utilised because they were cheap and easy to construct. The figures mentioned should be self-explanatory.

Wheels and Suspension Details

A careful check on the estimated unladen weight showed that this could be expected to be in the region of 7 to 8 cwt.'s, 1 cwt. of which would be on the tow bar. A total laden weight to be carried by the wheels was assumed to be 9 cwt., i.e. 4 1/2 cwt. per tyre. During one trip the van was checked on a weighbridge and the weight was found to be 9

cwt. 2 qtr in total, with all the equipment carried for a two weeks' holiday.

Tyres of 16in.x 4in. section, 6-ply quality are used, inflated to 45lb. per sq. in., fitted on standard Dunlop split rims, and to date have given no trouble. These tyres and rims are capable of carrying 10 cwt. per tyre when inflated to 90lb. per sq. in., but speed of revolution must be kept low

to prevent overheating. For this reason the maximum towing speed is never allowed to exceed 30 miles per hour, which is, of course, also the maximum legal limit.

The wheel frames are constructed from 1 1/4 in. x 1 1/4 in. x 1/2 in. angles welded up, and the suspension is by heavy-duty motor cycle saddle springs, three on each frame. Only half the weight is carried by the

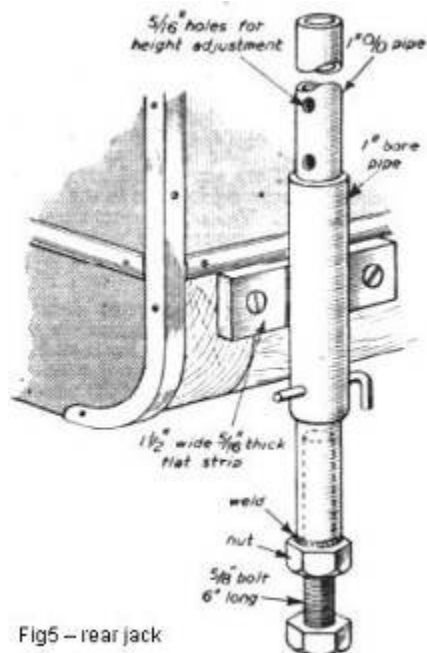


Fig 5 - rear jack

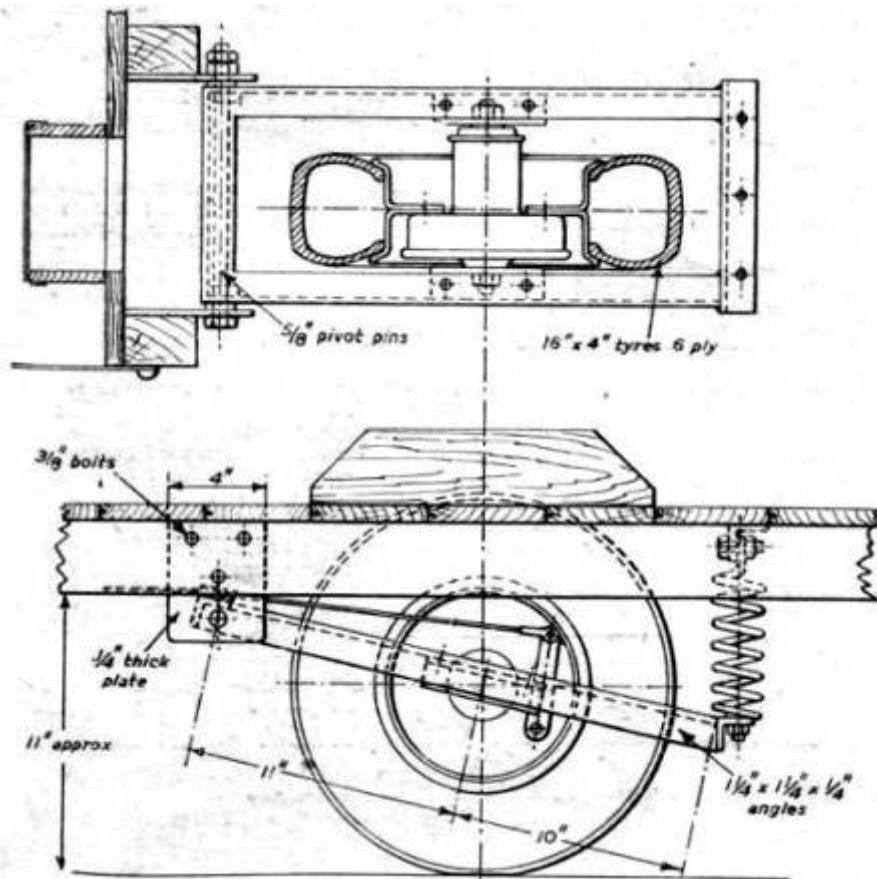


Fig 6 - Details of wheel suspension

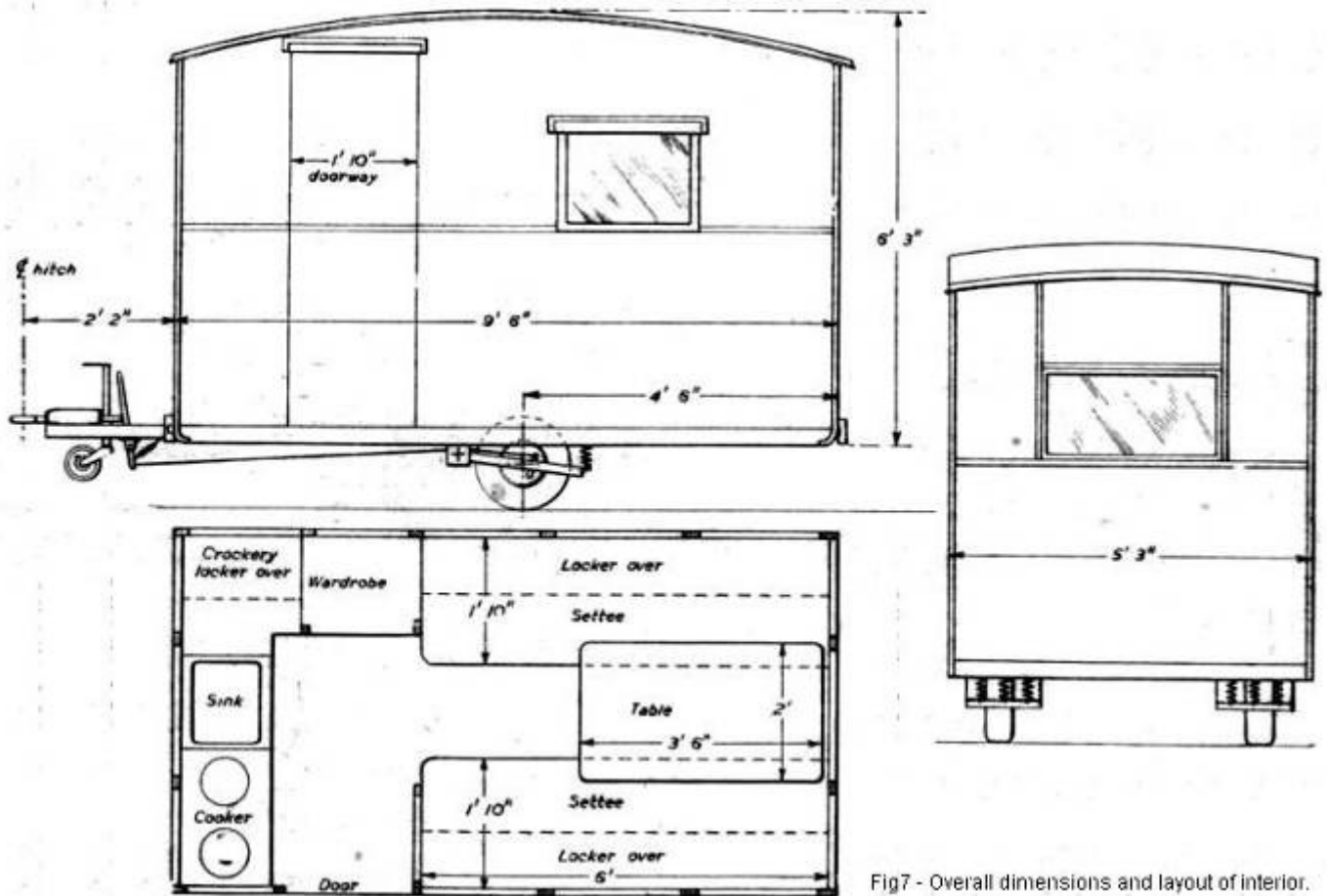


Fig7 - Overall dimensions and layout of interior.

springs, the other being carried by the frame pivot shafts which are 5/8in. in diameter.

The wheel rims are bolted to second-hand motor cycle front wheel hubs, the actual ones used being 1936 B.S.A. These have 5/8 in. diameter spindles, 6in. diameter brakes and the hubs run on taper roller bearings. The bolts for the rims are gin. diameter high tensile steel, with the heads reduced to 3/16in. thick. They are welded inside the brake drums, remaining in place in the event of wheel removal. The brake levers are connected to the operating rope by large-headed bolts as shown in Fig. 6, the rope end being in the form of an eye.

The rope passes over a brass diverter pulley attached to the wheel frame on the pivoting centre. This obviates brake snatch, which would occur if the rope was attached directly, due to the rise and fall of the wheels, thus lengthening or shortening the lever to wheel centres, as well as ensuring a good rope lead.

The hub spindles are supported by separate pieces of 1½in. x 1½in. x 1½in. angles, 6in. long, bolted to the wheel frames. The wheels complete

with hubs can be removed readily, without disturbing the wheel frames or springs. Constructional details and dimensions can be obtained from Fig. 6.

Bodywork

The body of the caravan is framed with 1½in. x 1in. hardwood throughout with the exception of the roof curves which are 1in. x 1in. section. Details and dimensions are given in Fig 7. The roof curves were bent in position without steaming as the camber is only 5in. in 10ft., and are supported by door and wardrobe corner pillars. They have been quite satisfactory. Walls and roof are covered with hardboard, the roof also being covered with good quality cotton duck, stuck down with paint in the usual way, afterwards finished with four coats of white lead paint with a final coat of aluminium paint. The usual aluminium guttering is fitted to the edges.

The front and rear windows are of the fixed variety, the two side windows being arranged to open. Rain flaps are fitted over the opening windows, as well as over the door, which is of the stable type, each half hinged separately.

Ventilating louvres are provided at each end, and also to the food cupboard which six 1¼in. diameter holes in the floors to promote good air circulation. All openings in larder are covered with gauze to prevent entry of insects.

Furniture

This is, of course, a matter for individual choice, but the arrangement shown proved very convenient and workable. The layout as shown sleeps two adults on the settee berths, and a child of 11 is accommodated on a canvas stretcher bunk at rear of the van resting in brackets on a level with the lower edge of the windows.

As described the van is single skinned no lining being fitted. Condensation has been slight as it is only used in the spring and summer months. If desired, the interior could be lined and the interior finish would be improved by so doing. The framing would be out of sight, and the van could be used colder weather without discomfort.

The cost of all materials used in the construction has been carefully recorded, and the total has worked out at £40.