

Popular

★HOME CRAFT

The Home Workshop Magazine

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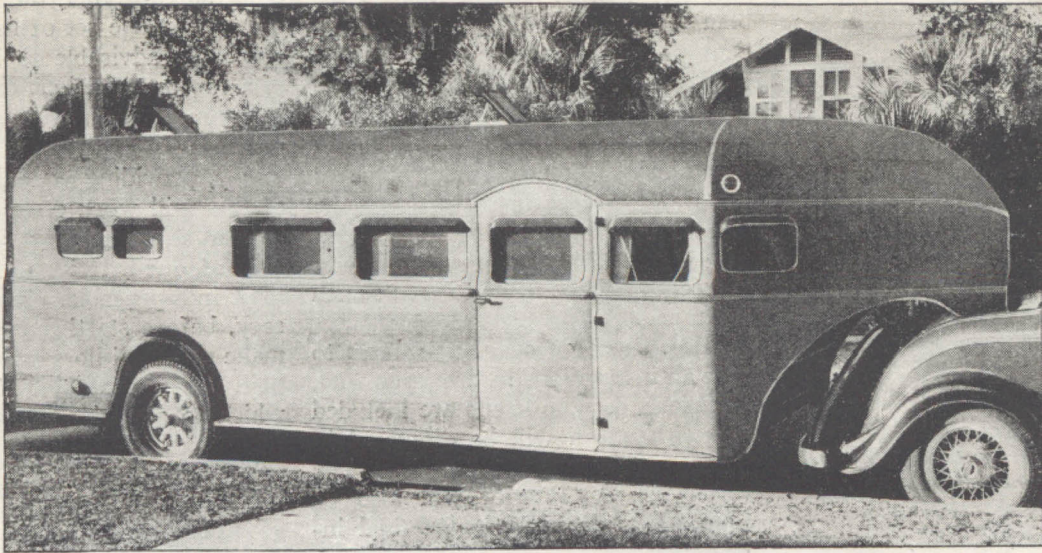
35¢

50¢ IN CANADA

*Construct This
"Pullman" Trailer
See Page 551*



BUILD IT YOURSELF



Construction of a "PULLMAN" Trailer

J. C. SPOONER

We present here a real home on wheels where you may enjoy all home comforts on the long trail, or on week-end jaunts. Start to build it now so you may be prepared for the vacation days of next summer.

THIS is the season when the home craftsman begins to think of the long highways, the winding trails, the running streams and the lakes abounding in trout; when he envisions the carefree days and nights of summer when he may fill his leisure time with those activities which suit his fancy. With reasonable ability in the handling of tools, a fair amount of time in which to work, and for a reasonable expenditure, what could be better than constructing this beautiful trailer, so his dreams may come true? The trails will soon be calling, and with a home such as this trailer is, the craftsman may travel to out-of-the-way places with all the comforts of his own home. Now is the time to make plans, and we can think of nothing better

than building this home on wheels in anticipation of your desires.

Unquestionably, one of the most comfortable and economical modes of travel today is in a house car trailer. This is evident by the great increase in the number of them on our highways today. The writer recently took a 3,500 mile trip over a period of twenty-five days with four adults in the party for a total expense of one

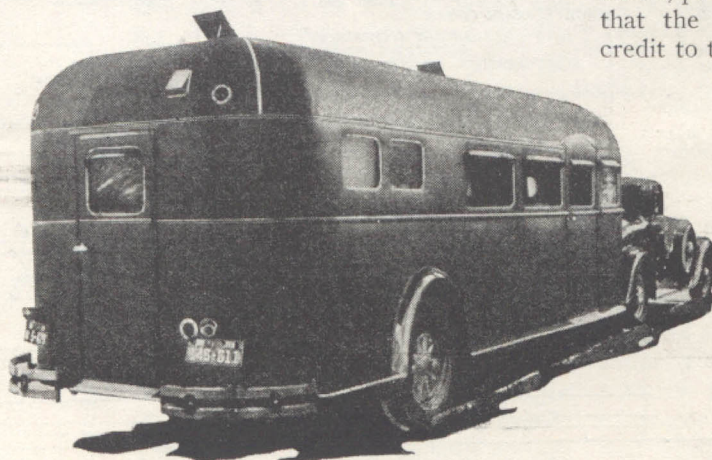
hundred dollars. This included operating expenses, food, laundry and parking fees. Most of the trailers on the roads, however, are not very substantial or comfortable; so the writer is presenting a trailer which he believes fulfills all the desirable features of a traveling home on wheels. This trailer is roomy, having available accommodations for four persons, or generous facilities for two. It is ideal for travel with children for extensive trips or for week-end jaunts. It tows nicely behind any light weight coupe or roadster on the market today and has no side sway or any other undesirable motion; it gives the sensation of gliding through space. Guests prefer riding in it rather than in the towing car, for there is no heat, fumes or vibration from the motor which might tend to make traveling unpleasant.

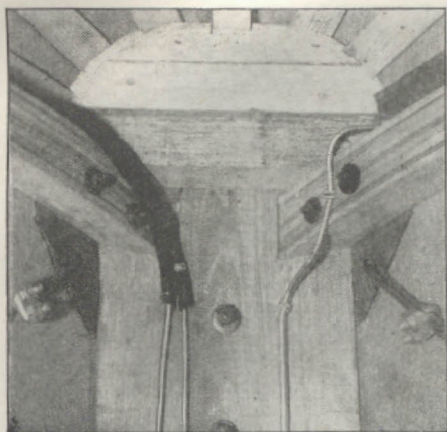
The construction of this trailer is not a small undertaking but should not prove difficult for the fairly skilled craftsman. It will take patience, perseverance and time in order that the finished trailer may be a credit to the craftsman who builds it.

If average care is used in the construction, this trailer should give years of dependable service.

Fine Accommodations Provided

The accommodations include built-in davenport bed, two single bed chairs, full length clothes closet, drawers for clothing, linen clos-





View showing interior construction of the nose of trailer. Note the cable bracing and the wiring.

et, toilet and shower bath, a complete kitchenette with ice box, sink, stove, running water and ample cupboard space.

It is equipped with both six volt and 110 volt lighting. It is twenty-three feet long overall, with nineteen feet of usable floor space, six feet, one inch, inside width, and full six foot head room. It will weigh from 3,000 to 3,800 pounds, depending on the equipment used.

It is very hard to give an accurate estimate of the cost of building this trailer because of the great difference in prices of materials in various parts of the country. However, this car can be built for from \$700.00 to \$900.00. The cost may be varied considerably by the use of various priced materials. For instance, this trailer is covered with the best grade of DuPont's Fabricoid, whereas there are several lower grades on the market. These figures include all sheet metal and machine shop work, as it is expected that the majority of builders will hire this work done. All plumbing materials, lighting equipment, beds, hitch and mechanical equipment, as well as the more common materials such as lumber, celotex, upholstery and bolts are included in this price range.

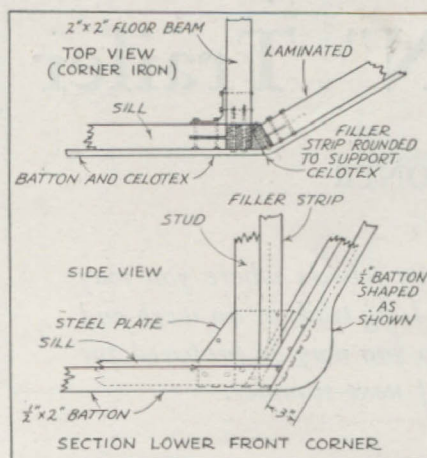
The drawings of the trailer are sufficiently detailed so that any craftsman who understands the reading of drawings can easily ob-

tain all essential dimensions. The plan view and elevations give all salient dimensions, and the numerous details of important parts and sections provide additional data which is not included on the plan view and elevations. While no figure numbers are referred to in discussing the building of this trailer, each detailed part is clearly indicated so that ready reference may be made to each sketch discussed.

Also, space does not permit us to give all instructions in this issue, and, therefore, certain details are included herewith which will be discussed in the next and concluding article. The layout of the interior will also be thoroughly discussed in the final installment.

Tools Required

We will take it for granted that the average craftsman who is consid-

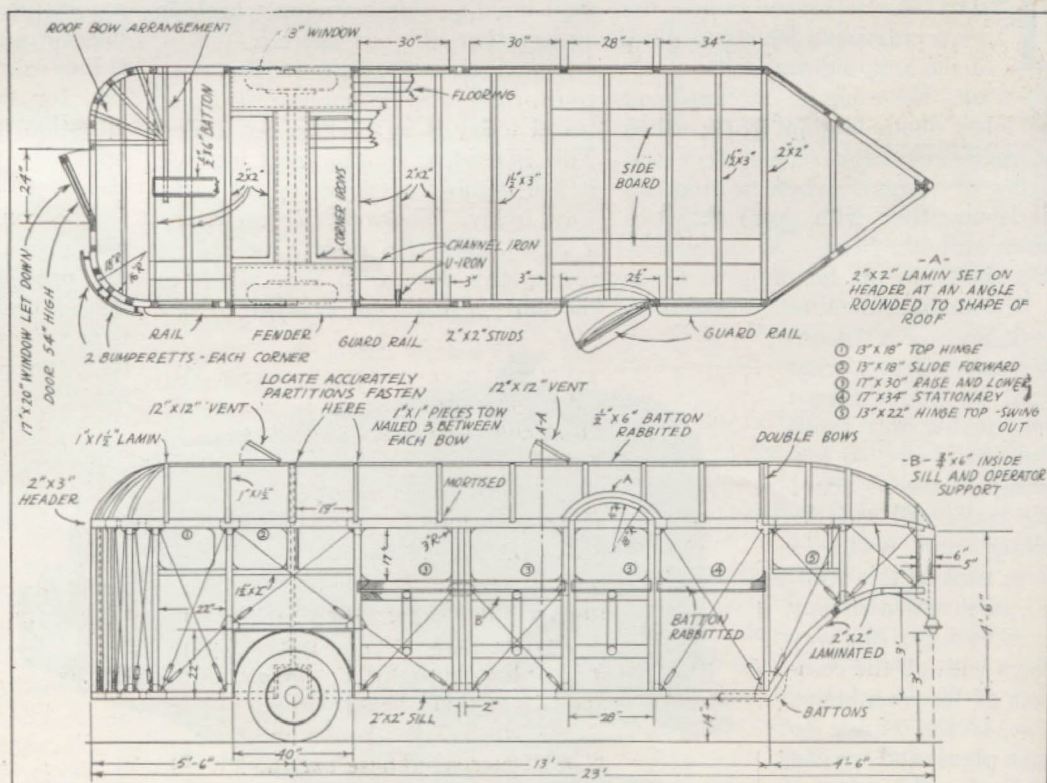


ering building this trailer will have a fairly complete set of hand tools. It would be advisable to have the use of a few motor driven machines, such as a circular saw, band saw and drill press. However, these are not necessary, providing you can have some of this mill work done at your local lumber dealer's. An electric hand drill of one-half inch capacity is almost indispensable. It will be necessary, before starting construction, to make six small horses fourteen inches high and about two feet long on which to assemble the trailer.

Axle and Spring Assembly

This trailer is not built directly on a chassis, although this procedure may be followed if desired. The sketches show clearly how the body may be attached to the chassis. The springs should be slung under the axle with a three inch block between the two. Two heavy 5/8" U bolts are used on each side to hold the spring to the axle. The strength of the springs will have to be determined by weighing the car and any good spring plant will make you up the right spring. The springs are mounted on the front with a conventional auto shackle and spindle, which should be fitted with an Alomite fitting.

The rear end of the spring may be held with a conventional auto flexible shackle or the shackle shown, which employs two pieces of fine web

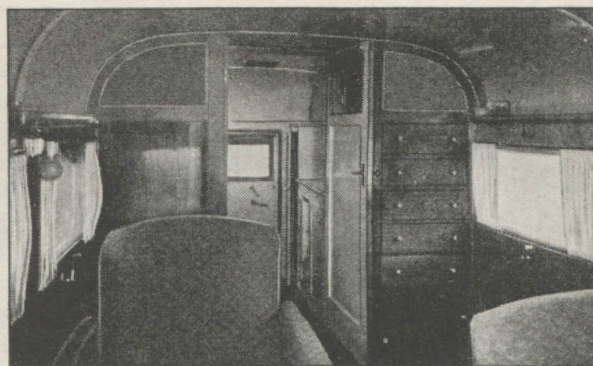
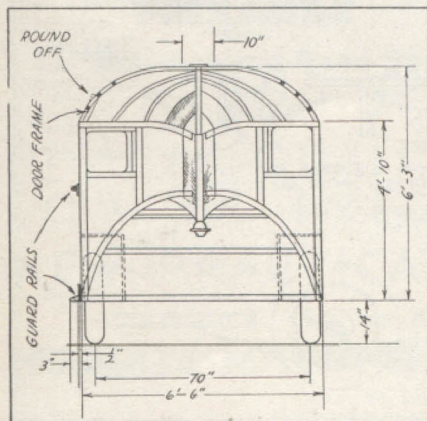


canvas belting to take the flex of the spring. A frame of one inch angle iron is made to hold this spring, which should be well made and welded. This angle iron frame is bolted where possible to the floor timbers and where not possible to use bolts, lag screws may be used. The front spring shackle is bolted to a piece of 1" x 6" channel iron, which in turn is bolted to the floor beams. This will distribute the weight over three floor beams. Refer to the drawings for all necessary details.

Construction of Frame

Make all the individual parts possible before starting to assemble the frame. These include the wheel box, axle tunnel, curved pieces and floor beams. Rip out and dress to 2" x 2" a quantity of spruce for framing, which should be as straight as possible. The dimensions are given on the drawings and the shape of all curved pieces are also given. The curved pieces are made up of 1/4" spruce strips a little wider than two inches, to allow for dressing. No steaming will be necessary. Lay the lines down on a wood floor, using wooden cleats nailed to the floor for clamping. Use enough high-grade glue and sufficient clamps. Make a form for the rear corners and roof blocks.

The wheel box is made up of 1/4" plywood with the back piece of 3/4" plywood. The inside of the wheel box is lined with celotex, where the tires throw stones, cinders and mud, for the purpose of deadening noise. Two inch blocks are sawed out and fitted in each corner at the front edge of wheel box to give a circular front, where the fenders finally fasten. The use of a late model stream-lined



View of interior of trailer. Notice the convenient and compact arrangement of space.

fender is recommended to improve the appearance of the trailer. The tail of this fender can be notched out to fit over the frame.

The axle tunnel is constructed of two layers of 1/4" plywood with a one inch spruce frame between, which gives a very rigid construction. Use glue and screw fasten wheel box and tunnel, then paint thoroughly.

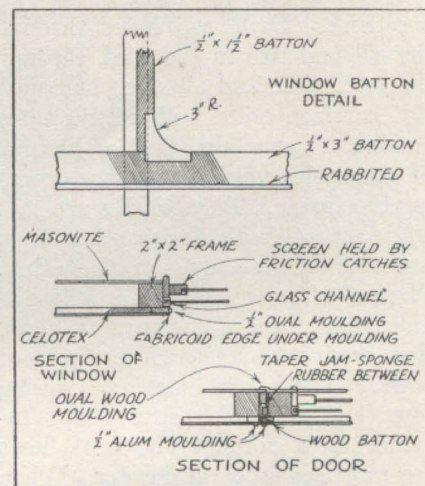
Assemble the base sill, setting in rear corners with half-lap joints, placing the wheel box at the proper location and setting the two curved pieces that connect this sill to the nose block. The nose block should be set up in place and temporarily fastened to 2" x 4" stock. Lay out and mark where the studs will come and start setting in the floor beams. The floor beams are 1 1/2" thick and are tapered from three inches at the center to two inches at the ends and should be spaced approximately on sixteen inch centers. This will vary a little as no floor beam should coincide with a stud, and is much better if placed two inches from the stud. This is because the floor beams are fastened with U shaped 1/8" x 1 1/2" band irons which go completely around the base sills. Countersink the holes on the top of this U iron and use flat headed stove bolts. This will save a lot of trouble when you lay the flooring. Mark where the slots come for the iron braces to which the cables fasten and saw these. The slots that come where a window lowers into the frame will have to be set off-center, about 3/4" from the inside of sill, so as not to interfere with window operators. The balance will be in the center of the sill. A keyhole saw with a heavy set in the teeth is ideal for this work. The first three floor beams on each side of the wheel box should be straight 2" x 2" pieces. These may be spaced a little closer together, as your springs

fasten here, and these beams will carry all the weight on the car. The skid boards, 1/2" x 8" x 8' long, should be fastened to the under side of the floor beams. Put clamps across the frame to draw the sill and floor beams as tight as possible before bolting. Use plenty of glue on all joints.

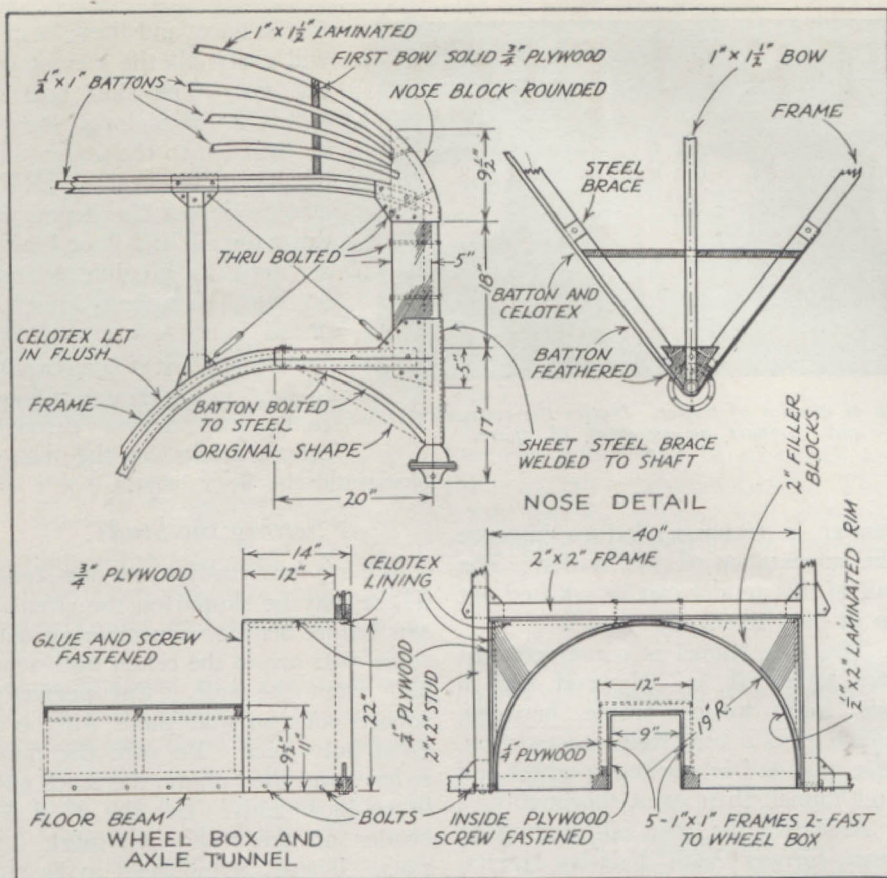
At this point it is advisable to line up the frame with a chalk line drawn through center marks on the nose block and the floor beams.

Setting the Studs

We are now ready to set our studs. These may be slotted on the circular saw before setting, remembering that some slots are in the center and some 3/4" from the side. Cut perfectly square ends so that there will be a good butt joint. Be sure the floor is level and then plumb the studs and brace thoroughly. Set the 2" x 3" header on the studs and mark for slots. There are no slots to be cut at top of some studs. Note the side elevation of the trailer. The header can then be taken down to saw the slots and then replaced. Allow the header to extend across the side floor, as this can be sawn out later, when the curved piece for the door opening has been fitted. Set in rear corners and curved pieces from the header to the nose block, using half-lap joints and plenty of glue.



The steel plates necessary for this trailer can be cut very easily and quickly by any large machine shop that has power shears. Some blacksmiths also have these shears. Make patterns for each shape. Fit 3/4" x 6" pieces at the sill of the windows that let down, which will also support



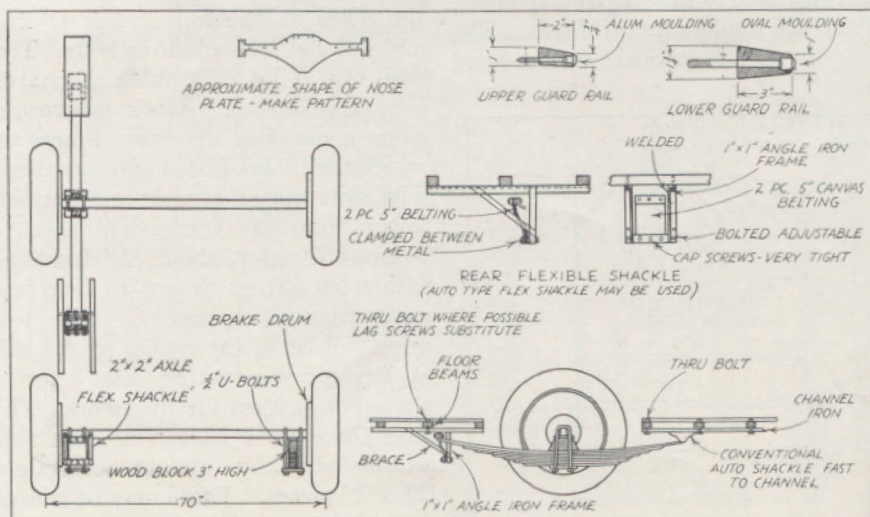
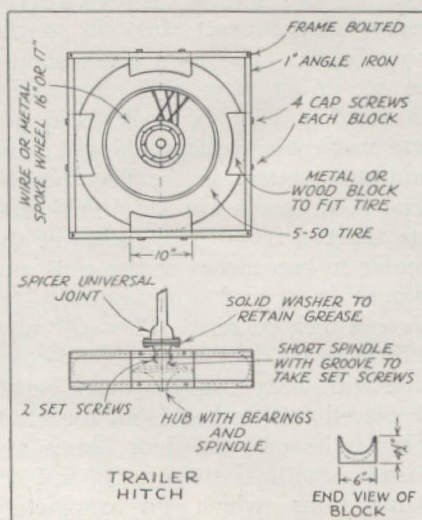
the window operators. Fit 2" x 2" pieces for the balance of the windows. Insert steel plates and connect up the cables and turnbuckles, soldering all splices. Cable clamps may be used in some places and are easier and quicker to use. Put a slight tension on the cables. A $\frac{1}{4}$ " seven strand cable is used, except those that cross the windows, and these should be $\frac{3}{16}$ " cable or $\frac{1}{8}$ " piano wire. Drill two holes through the sill and two in the stud, through the steel plate and all, then bolt with $\frac{5}{16}$ " carriage bolts with nuts on the outside. Leave the final tightening of the cables until just before covering the frame. Turnbuckles are $\frac{1}{4}$ ", high quality, with fork and bolt on one end and an eye on the other. Place all other pieces in the frame as indicated in the drawings. We are then ready to make and set the roof bows. These are made by gluing four $\frac{1}{4}$ " x $1\frac{1}{2}$ " spruce strips together on a form. The roof bows are mortised into the header. When all are set they should be faired up. It will probably be necessary to plane some of the bows down a little. Make and set the ventilator frames and set in flush three small pieces $\frac{3}{4}$ " x 1" between each roof bow at the sharp turn of the roof, so that the celotex will not sag. The roof bows in the nose will have to be made individually

in each case. Mark where these will come on the frame and take measurements. They will have to be beveled after setting in place.

Fit the curved piece from the forward roof bow to the nose block, letting it in flush in each of the bows in the nose section, making half lap-joints in each case. Then set in several $\frac{1}{2}$ " x $1\frac{1}{2}$ " battens flush, dividing the space up equally at each bow, as the celotex which is to cover this part of the roof will have to be put on in triangular pieces. These pieces will butt in the center of each batten, the same as in planking a boat. All pieces that attach to the nose block are half mortised in flush and the nose smoothed off. Glue and through bolt all these joints. Also, use two bolts through the shaft of the universal joint and the nose block. There are two rather large pieces of sheet steel that further strengthen this nose. The approximate shape of these steel plates are given in the drawings, but these should not be followed exactly, as each trailer will vary a little, and a cardboard pattern should be made to fit each individual car. Fasten a $\frac{1}{2}$ " x 6" batten down the full length of the center of the roof. Rabbet this batten to take the celotex. Use the ends or curved parts of three roof bows and set three pieces in each rear corner. Divide the 90 degrees equally.

Fit the curved piece over the side door and construct the doors, allowing for the tapered and offset door jamb which may now be applied. Lay the flooring next, using either $\frac{1}{2}$ " cypress ceiling smooth side up, or $\frac{3}{8}$ " plywood. Tempered Masonite flooring may also be used.

The bill of materials will be found on page 593 of this issue.—The Editor.



BILL OF MATERIALS FOR "PULLMAN" TRAILER (See Page 551)

No.	Item	Size	Notes	No.	Item	Size	Notes
75 sq. ft.	Spruce	2"	Framing	45 sq. ft.	Copper screen		
30 sq. ft.	Spruce	1 1/2"	Floor beams and roof bows	2 gross	N. P. Screws	3/4" No. 6	Oval head
100 sq. ft.	Cypress	1 1/2"	Ceiling—floor	1 gross	N. P. screws	1 1/4" No. 6	Interior trim
50 sq. ft.	Spruce	1 1/2"	Buttons	3 gross	N. P. washers	1 1/4" No. 6	Interior trim
25 sq. ft.	Cypress No. 1	1 1/2"/16"	Kitchen partitions and cupboards	6 rolls	Blue cotton	No. 6	Interior trim
15 sq. ft.	Cypress No. 1	1 1/2"	Partitions	26 yards	Fabricoid	For screws	Outside
1 Piece	Plywood	3/4"x2'x7'	Wheelbox	16 yards	Top material	52"	Outside
4 pieces	Plywood	3/4"x4'x6'	Wheelbox and shelving	6 tubes	Top cement		
7 pieces	Prestwood	3/8"x4'x8'	Interior	10 lbs.	Casco glue		
20 sq. ft.	Mahogany	1 1/2"	Window frames	3 cartons	Door Tite		(Gummed sponge rubber)
25 sq. ft.	Mahogany	1 1/2"	Screen frames				
400 sq. ft.	Celotex	1 1/2"	Fork on one end, eye on the other	14 sq. yds.	Upholstering, Fabricoid		Ceiling color light
36	Turnbuckles	1/2"	Braces and plates	175 ft.	Alum. moulding	1/2"	Oval or with black filler
1 piece	Steel	1/8"x36"x96"		150 ft.	Alum. moulding	3/4"	Oval or with black filler
200 ft.	Cable	3/4"		2	Fenders	New type	For mouldings
100 ft.	Cable	3/16"		3 gross	Brass screws	3/4"	For mouldings
24	Piano wire	1/8"		100 ft.	Flat or tapered rubber	1/16"	Around windows, outside
1	Universal joint	1 1/2"x3"	Second hand	1 sheet	Chrom. plated zinc		Bath floor and stove comp.
36	Corner irons or braces	1 1/2"x3"		2	Mortise door locks		For narrow doors
72	Corner irons or braces	1 1/2"x3"		2 pair	N. P. Hinges	3" narrow	
30 ft.	Band iron	1 1/2"x1 1/2"	U irons	3 pair	N. P. hinges	2 1/2" narrow	
30 ft.	Angle iron	1"	Hitch	5 pair	N. P. hinges	2" narrow	
2 gross	F.-H.-stove bolts	1/4"x3"		5	Mortise catches		
6 doz.	Carriage bolts	1/4"x3"		6	N. P. turn-buttons		
4 doz.	Carriage bolts	1/4"x6"		6	N. P. knobs		
1 doz.	Carriage bolts	3/8"x6"		2 doz.	Friction catches		Drawers & cupboards
1 doz.	Carriage bolts	3/8"x10"		1 gal.	Flat paint		Kitchen and bath
4 gross	Steel screws			1 gal.	Enamel		Kitchen and bath
3 lbs.	Galv. nails	3d	Flooring	1 gal.	Paint		Under windows that let down inside frame & bottom
5 lbs.	Roof nails	3/8" galv.	Celotex	1 gal.	Preservo for wood		Entire frame
3 lbs.	Assorted nails			11 sq. yds.	Linoleum		
2	Auto door locks			11 sq. yds.	Linoleum		
2	Auto door dovetail bumpers				Felt & cement		
3 pair	Auto hinges	blank					
7	Window operators	18" lift					
50 sq. ft.	Auto window glass						
60 ft.	Window channel						

Electrical Supplies

No.	Item	Size	Notes
200 ft.	Stranded auto cable	No. 12	
20 ft.	Loom		
4	Light fixtures		With standard sockets and switches
4	Running lights		Two red and 2 green—flush type
2	Stop lights		
1	Marine outlet		Waterproof with plug for 110 volt
1	D. P. D. T. switch and fuses		
3	Block switches		
1	Battery	6 volts, or 8	

Plumbing Supplies

No.	Item	Size	Notes
1	Spring faucet		Kitchen
1	Sink	12x16	Aluminum
1	Tank	20 gal.	With pressure gauge and filler spout
1	Shower head and valve		
20 ft.	Pipe	3/8"	
1	Tee	3/8"	

5	Ells	3/8"	
1	Tee	1"	
1	Plug	1"	
1	Nipple	1"	
1	Bushing	1" to 3/4"	
1 piece	Radiator hose	1 1/2"	Down corner of wheel box
1	Chemical toilet		

Brakes

No.	Item	Size	Notes
30 ft.	Copper tubing	1/4"	
1	Vacuum cylinder	7"	
1	Master brake cylinder		Hydraulic
1	Vacuum valve		
10 ft.	Hose	1/2"	High pressure
1	Hose coupling	1/2"	
1	Gate valve	1/2"	With a short piece 1/2" tubing soldered in each side
10 ft.	Copper tubing	1/2"	
4	Extra spring leaves		To reinforce rear springs
1	Axle assembly		Complete with springs, shackles, brakes, etc.
2	Snubbers		

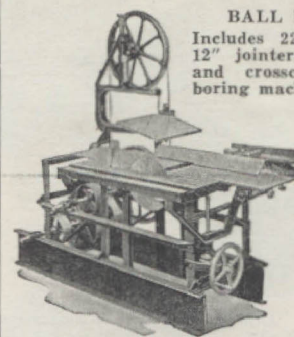
SIGNAL FOR MAIL BOX

Of inestimable value to the rural resident, with the mail box at the end of the lane, is a simple arrangement of a heavy wire running from the door, through the box, and through a hole in the back. When the door is opened, this wire is pushed forward by a spring which throws a signal in a small box attached to the rear of the mail box. The latter has a glass

front facing the house, and when the door is opened the signal is thrown and a red disc disappears. When the mail is taken from the box and the door closed, a small lever is thrown, setting the signal for the next delivery.

A mail box beyond the vision of the house would necessarily have to be electrically wired so that the opening of the box would cause a bell to ring in the house.

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