

Steel Frame Box Cars for the Russian Government.

The Russian Government has placed orders recently for a large number of freight cars to be delivered on short notice. These include 2,000 steel framed, inside sheathed 40 tons capacity box cars for grain and general service, now being delivered by the Eastern Car Company, New Glasgow, N. S. As will be noted from the accompanying illustrations the type of construction embodies a design of outside metal roof with runningboard and handrail attachments to suit European practice. Insulation is obtained by the use of a layer of matched boards, placed longitudinally and secured to furrings which are bolted on top of pressed steel carlines, which in turn are riveted to the side plate Z-bar. The roof sheets are applied in 20 sections per car of no. 24 galvanized steel having standing seams.

A structural steel side framing is employed. The side posts and diagonal braces, with the exception of the inner diagonal brace at bolster, which is formed from a 3-in Z-bar @ 8.4 lb. per ft., are all 3-in. Z-bars @ 6.7 lb. per ft. Side post and brace top connections to 4-in. Z-bar @ 8.2 lb. side plate are made with pressed steel connection plates. The 7 x 3½ x 7-16-in. rolled steel angle iron side sill is so located as to admit of the side posts and braces being riveted directly to same with three rivets at each crossing. The side and end lining is formed from 1¾ x 5¼ in. tongued and grooved boards, secured to each post by eight and to each brace by six button head bolts with nuts placed outside, so as to give a smooth interior. The top flange of the side plate Z-bar forms a sealed joint with the lining and at the bottom, the lining is extended to the lower edge of the flooring. A 2½ x 2 x 3-16-in. corner angle secured to the bottom board of the lining with button head bolts and having the wide flange resting on the top of the floor forms a grain tight joint all around the base of the car. The side doors are 6-ft. 5½-in. wide formed with a frame 2¼-in. thick, having two centre rails reinforced by ½-in. pressed steel brace. The corners of the door are

thick is secured over the flooring at the door opening. The flooring is formed by tongued and grooved boards 1¾-in. thick, bolted to the underframe members.

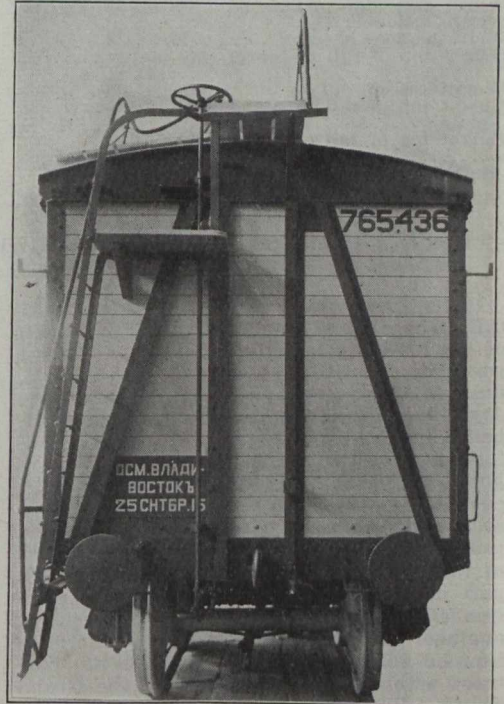
Pressed steel corner posts ¼-in. thick are provided in conjunction with 3-in. Z-bars @ 6.7 lb. for centre end posts and diagonal braces. The usual type of brake mast application, as used for cars operating on this continent, is followed, and a pressed steel platform and brace is included.

Hook type, drop forged couplings are used in conjunction with springs and cast follower cups, the stem of the coupling is extended and threaded, so as to accommodate one hexagon nut and a flat split key placed immediately behind the rear follower. The European type of disc buffer, 17 23-32-in. diameter, is used, same being bolted directly to the end sill.

The design of the underframe presents an unusual procedure, in that truss rods 2-in. in diameter, located 13⅝-in. off centre, are employed in conjunction with an all metal underframe and steel side frame. The centre sills are 10-in. @ 21.8 lb. per foot rolled steel channels, placed 12⅞-in. apart back to back, a full length top cover plate 20-in. by ¾-in. is provided, also a 4 x 3½ x ½-in. x 33¼ ft. rolled steel angle is riveted to the lower portion of the web of each centre sill. Bolsters are formed with 16 x ¾-in. cover plates, the top one only extending from side sill to side sill, the lower one just includes side bearing, all secured to pressed steel diaphragms flanged all around. Cast centre plate fillers between centre sills form a tie between the two bolster diaphragms. Two crossbearers placed 12¼ ft. apart centre to centre, provided with same design of diaphragms as bolster, and top and bottom cover plates 6 x ¾-in., form support for truss rod struts, which are 23¼-in. deep. Floor supports of pressed steel 4¼-in. deep are located as follows: one between bolster and crossbearer and one between crossbearers at centre of car. Longitudinal floor stringers of 3-in. Z-bars @ 6.7 lb. per ft, run full length of car, located 3 ft. 1 in. each side from centre of car. Press-

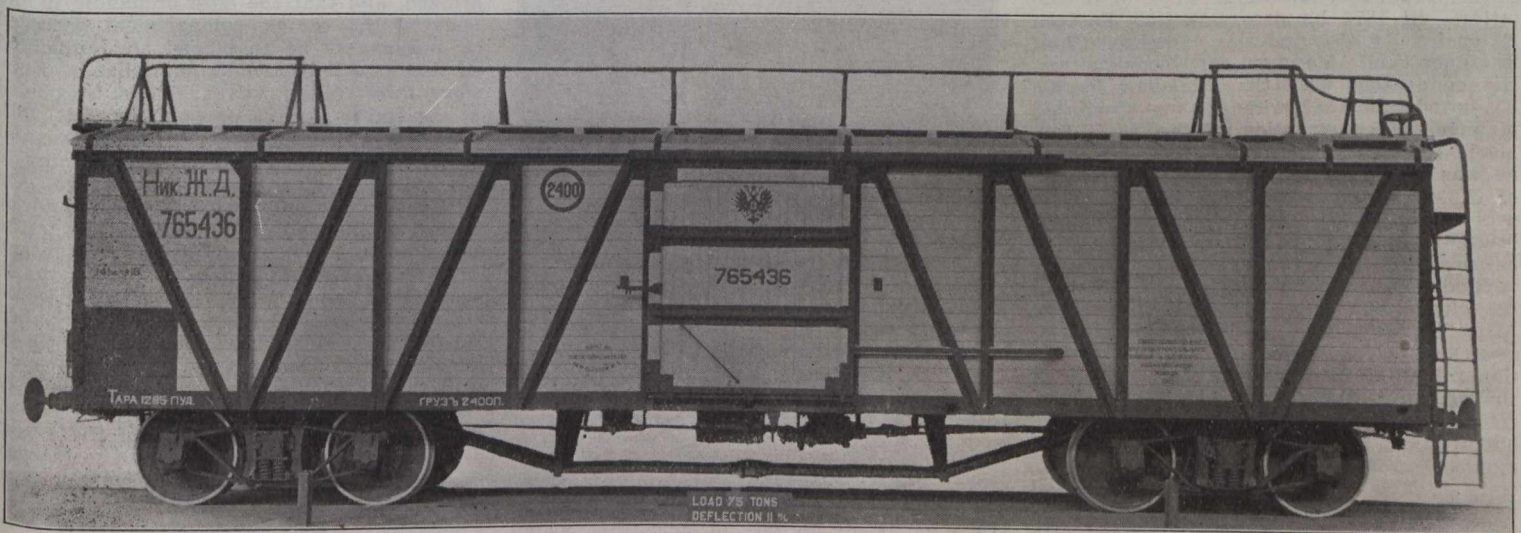
steel piping. All safety appliances are arranged to come within the clearance gauge of the German and Austrian Railways.

An arch-bar type of truck is employed in conjunction with axles having journals for 100,000 lbs. capacity cars, in spite of the fact that the cars are only built for 80,000 lbs. loading. The side frames are formed by top and bottom bars 5 x 1¼-in. steel and



End View of Steel Frame Box Car for Russian Government.

tie bar 5 x ⅝-in. steel. Centre plates are of malleable iron, body section bolted, truck section riveted to truck bolster, latter being formed by two 10-in. I-beams @ 25 lb. per ft. and fitted with 13-in. x ¾-in. top and bottom cover plates. Roller type side bearings located 2½ ft. off centre and arranged for ¾-in. clearance, are employed in con-



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strengthened by angle plates; the top and bottom combination guide and stiffener strips, which are Z-shaped, are bolted to the door frame and engage three malleable iron bottom guides when the door is closed. Door hangers operate on an enclosed track as shown by the illustration. Grain doors of the removable type are provided and the usual type of steel threshold plate ½-in.

ed steel diagonal braces, transmitting thrust from end sill buffer to centre sill are formed, so as to tie the bottom and centre sill construction together, as well as giving stiffness to the pressed steel end sill, which has a flange 12-in. wide lapping over the centre and side sill construction.

The ladder stiles are formed from angles with round iron treads; hand rails are of

junction with four-cluster type bolster springs located 6 ft. 8 5-32-in. centre to centre. Offset style of brake rigging is arranged to provide a distance of 15-in. from rail to centre of brake head. Column castings are designed with brake hanger lugs cast integral. Clearance between top of bolster and underside of top arch bar is maintained at ¾-in. centre pins, 2-in.