

# 70-Ton Hopper Cars for D. L. & W.

*400 three-hopper steel cars built to replace 40-ton steel and wood coal carrying equipment*

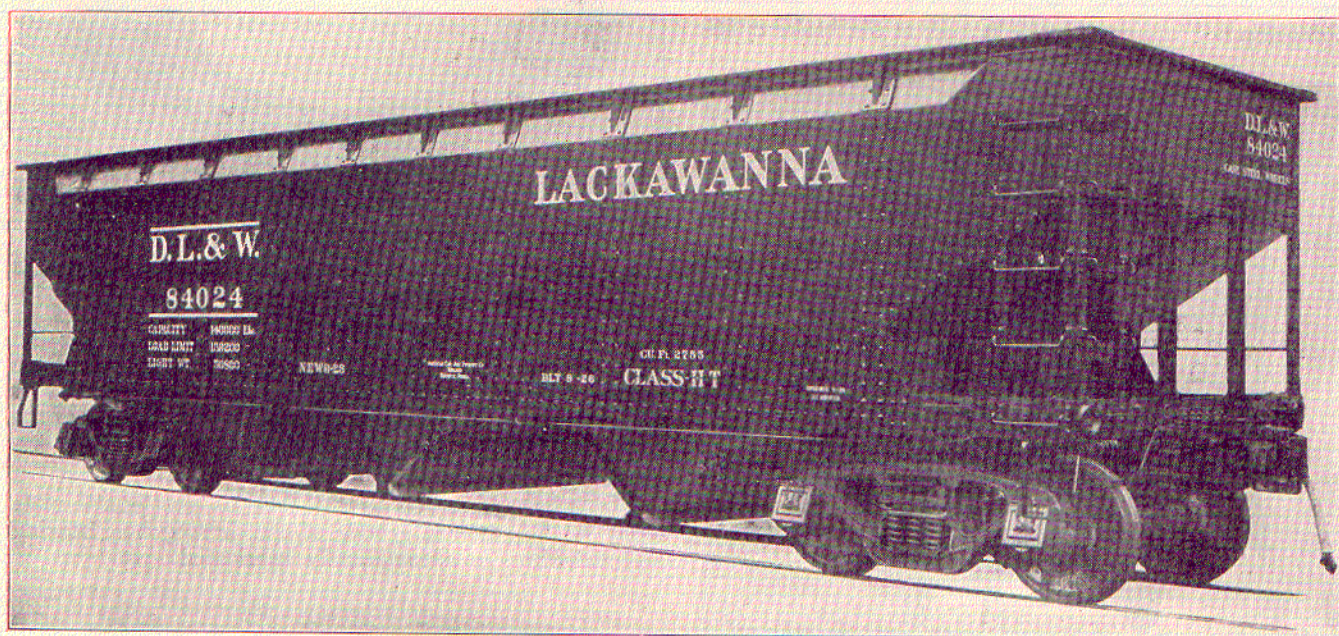
**I**N order to facilitate the handling of coal traffic, the Delaware, Lackawanna & Western recently retired about 400, 40-ton steel and wood coal cars and replaced them with modern 70-ton hopper-gondola cars which were built by the American Car & Foundry Company at its Berwick, Pa., plant. These new cars are the first of this capacity and type to be used by the Lackawanna. A great part of the coal handled by the Lackawanna is anthracite and in building these cars particular attention was directed to the construction of the car body and doors in such a manner as to eliminate, as far as possible, the loss of the small sizes of coal by sifting.

Increased loading capacity was obtained in this car by arranging the stakes on the inside of the side sheets instead of on the outside, as is the usual practice. There

entire length of the car, with a  $\frac{1}{2}$ -in. by 12 $\frac{3}{4}$ -in. top cover plate. The ends of the channel are coped away to receive the buffer attachments together with a Union coupler centering device. There are seven pan-shaped  $\frac{1}{4}$ -in. pressed fillers, and one saddle of  $\frac{1}{4}$ -in. pressed steel located under each longitudinal ridge sheet. The body bolsters are built up of plate and angle construction. The bolster and side connection angles extend into the car. Diagonal braces of 5-in. by 3 $\frac{1}{2}$ -in. by  $\frac{3}{8}$ -in. angle section are connected to the center sills and bolsters by  $\frac{1}{8}$ -in. gusset plates.

## Draft Gear and Trucks

The top side angle is a  $\frac{5}{8}$ -in. by 3 $\frac{1}{2}$ -in. by  $\frac{3}{8}$ -in. bulb angle running the entire length of the car. The bottom



70-Ton Three-Hopper Steel Car Built for the D. L. & W.

are 10 pressed steel stakes on each side of the car, two of which are secured to the center construction by means of deep gusset plates in order to prevent the bulging of the sides. The sides are further reinforced by four pressed steel cross ties placed at the top of the sides and properly spaced to give uniform stiffness. Three double hoppers are used which provide six extra large door openings with independently operated hopper doors to facilitate easy and rapid discharge of the lading. The details of the hoppers, such as the side and center hopper sheets, stiffeners, door spreaders and hopper doors, are standardized and interchangeable in order to minimize the number of parts required for repair work. The principal dimensions of the cars are shown in the accompanying table.

## Details of Construction

The under-frame is of the built-up type with two center sills composed of A. R. A. standard 12-in. special rolled channels, weighing 40.3 lb. per ft., extending the

flange angle at the sides is 5 in. by 3 $\frac{1}{2}$  in. by  $\frac{3}{8}$  in. and extends from bolster to bolster. The side sheets are  $\frac{1}{4}$ -in. plate, except that at the end panels they are  $\frac{3}{8}$ -in. plate, pressed with an offset to accommodate the side ladders. The side sheets are all pressed inward at the top with ten  $\frac{1}{4}$ -in. stiffeners on each side of the car. The sub side-sill is a 9-in., 17.5-lb. channel. The end sills are 9-in. 17.5-lb. channels with 3 $\frac{1}{2}$ -in. by 3 $\frac{1}{2}$ -in. by  $\frac{1}{8}$ -in. angle connections to the center sills and top cover plate. The corner posts are 3 $\frac{1}{2}$ -in. by 3 $\frac{1}{2}$ -in. by  $\frac{1}{8}$ -in. angle and the end posts are of 6-in., 8.2 lb. channel, except at the corner where the hand brake is located. The end post at this point consists of two 4-in., 8.2 lb. Z-bars arranged for the application of the Ajax handbrake. There are six hopper doors pressed from  $\frac{1}{4}$ -in. plate, known as Ajax corrugated doors manufactured by the Union Metal Products Company. The six doors operate independently and are equipped with the Enterprise Railway Equipment Company's Type "D" door operating mechanism.

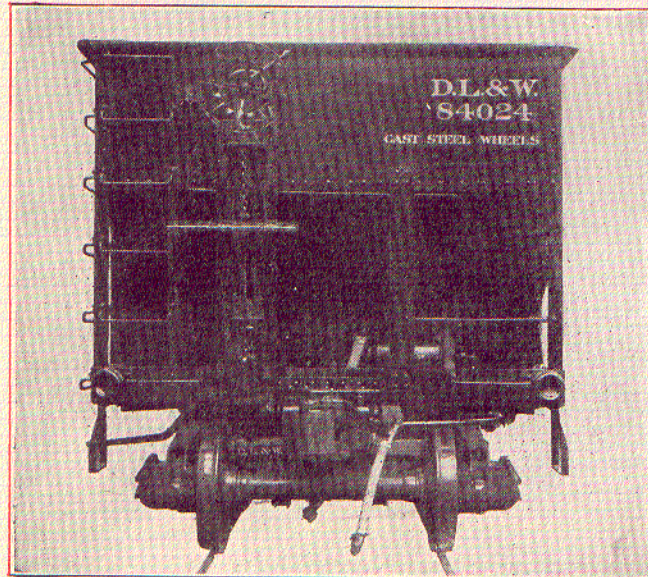
## Self-Lubricating Lateral Plate for Driving Boxes

**I**N an effort to solve the problem of lateral wear on driving boxes, the More-Jones Brass & Metal Company, St. Louis, Mo., has developed a self-lubricating bronze lateral plate for driving boxes. It is cast close to the dimensions required which, it is claimed, allows the lateral plate to be applied at less than half the expense required in the present method of pouring the

The cars are equipped with the Cardwell draft gear, type G. 111-AA, secured between Universal cast steel draft lugs. The couplers, furnished by the Gould Coupler Company, are A. R. A. type "D" with 6-in. by 8-in. shank and the regular A. R. A. butt suitable for either the single key, vertical yoke or double key horizontal yoke attachment. The draft keys used are of 6-in. by 1-in. by 1/2-in. carbon steel, quenched and tempered, with Universal draft key retainers. The side bearings are of the spring controlled anti-friction type manufactured by E. S. Woods & Company.

The car superstructure is mounted on Bettendorf four-wheel trucks. These trucks have cast steel side frames with journal boxes cast integral and are arranged for six truck springs at each side frame. Cast steel truck bolsters are used, with integral center plates and they are arranged for the Barber lateral motion device. The trucks are designed for 70 tons capacity and are equipped with double coil springs manufactured by the Crucible Steel Company. Davis 33-in. steel wheels, manufactured by American Steel Foundries, are mounted on 6-in. by 11-in. axles.

The cars are equipped with the National Car Equipment Company's Ajax hand brake which is designed to develop not less than 3,950 lb. pull at the brake cylin-

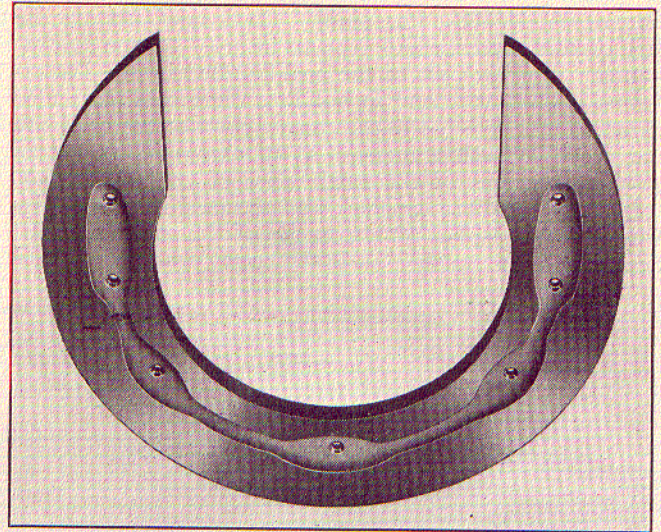


End View of the Car, Showing the Arrangement of the Hand Brake Equipment

der push rod connection to the cylinder lever. The air brakes are Westinghouse automatic quick action, schedule K. D. 1012 with K-2 triple valve, centrifugal dirt collector, and double spring retaining valve, 10-20 type. A. R. A. No. 2 plus Creco trussed brake beams with which Creco four-point brake beam supports are employed.

### PRINCIPAL DIMENSIONS OF D. L. & W. 70-TON CARS

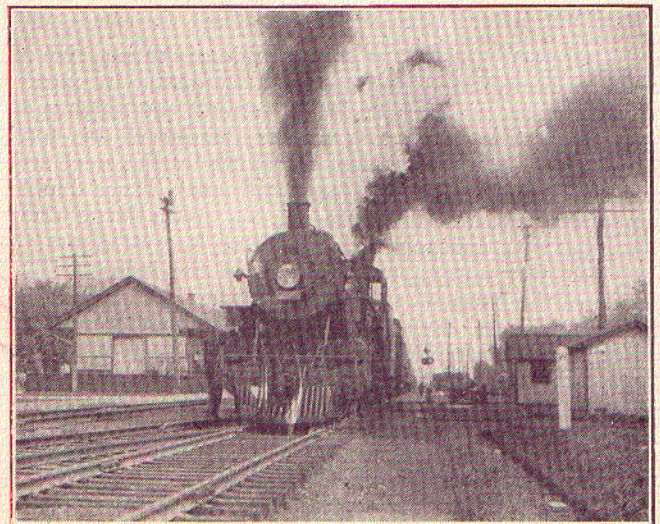
Length over pulling face of couplers.....	43 ft. 11 1/2 in.
Length over buffers.....	41 ft. 5 in.
Length inside, in the clear.....	40 ft. 0 in.
Width, over all.....	10 ft. 2 3/4 in.
Width, inside.....	10 ft. 1 in.
Height from top of rail to top of body.....	10 ft. 8 in.
Height from top of rail to hopper door opening.....	10 5/8 in.
Center to center of trucks.....	31 ft. 5 in.
Wheel base of trucks.....	5 ft. 8 in.
Capacity, level full.....	2,755 cu. ft.
Capacity, with 10-in. average heap.....	3,090 cu. ft.
Light weight.....	50,800 lb.



The Lubrication is Fed to the Lateral Plate From a Grease Groove of the Driving Box Bearing

plate on the box. This practice usually requires an excess of metal, which is machined off. The renewal of the self-lubricating plate requires only the nicking of the welds and the wedging off of the plate, permitting the salvage of the material in a single piece.

The lubricant is fed to the face of the lateral plate from the first grease groove of the driving box bearing and therefore is automatically lubricated.



On the L. & N. at Worthville, Ky.