

*Mechanically-Driven Rail Car Built for the Susquehanna & New York by Smalley Rail Car Company, Davenport, Iowa*

## New Gasoline Rail Car Developed

*Susquehanna & New York acquires mechanically-driven car which adheres closely to railroad standards*

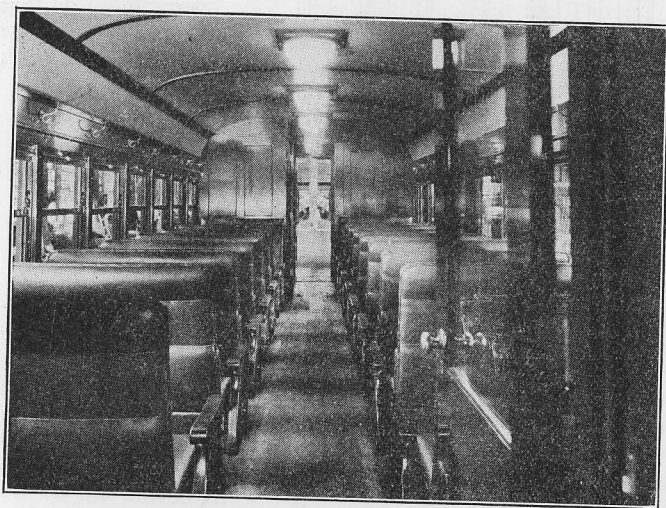
**A** NEW gasoline rail car, designed to conform so far as possible in mechanical details as well as general appearance, equipment and interior finish to the best modern steam railroad practice, has been developed by the Smalley Rail Car Company, Davenport,

ment, enclosed vestibule and toilet, and is intended to handle a trailer in regular service!

The car, which is 60 ft. long and weighs 61,000 lb., is mechanically driven to the inside pair of wheels of each truck from two four-cylinder, 75-hp. Climax gasoline motors placed side by side at the front of the car and independently clutched to a common gear box, permitting the car to be driven by either or both motors at the will of the operator. This tends to promote reliability of operation since, in case of mechanical trouble with either motor or with either truck, the defective unit can be disconnected quickly and the run completed on the remaining drive. Except for quick acceleration and for negotiating heavy grades, less than half the maximum power is required to operate the car, thus assuring the economy which will result from operation with only one motor a considerable proportion of the time.

The Smalley rail car is of all-steel construction. The body, of the single arch roof type, is built with an exterior of 12-gage steel and interior trim of solid mahogany with ceiling of agasote. It is mounted on an underframe consisting of four, 6-in., 10½-lb., channels with built-up bolsters and end sills. Liberal bracing and cross ties are provided to assure rigidity and maximum resistance to the weaving action of the car on the curves and relatively rough track encountered in branch line service.

Special attention has been paid to the truck design, each truck frame consisting of a one-piece Commonwealth steel casting with pedestal jaws and end transom for the drive housing cast integral. The truck bolsters are offset on a 60-40 ratio so that 60 per cent of the car weight and pay load is on the drivers at all times. Rolled steel wheels 30 in. in diameter are pressed on 4-in. carbon



*Interior View of Car Looking Toward the Smoking Compartment and Baggage Room*

Ia. The first car of the new design was recently completed and delivered under its own power to the Susquehanna & New York at Williamsport, Pa. It contains main and smoking compartments with a combined seating capacity for 50 persons, a 19-ft. 8-in. baggage compart-

vanadium steel axles. Cast steel journal boxes equipped with two Timken bearings each bear against hardened steel shoes in the pedestal jaws. The spring arrangement has been designed to assure maximum comfort in riding, especially on rough track.

A 32-volt lighting system, fed by a 120 amp. hr. storage battery, is provided. The 1-kw. generator, furnished by the Safety Car Heating & Lighting Co., is driven directly from the engine shaft. The lights are on two circuits so that one-half of all the lights can be used at will. Marker and classification lights and the headlight are each independently controlled. The 12-in. golden glow headlight, of 250 candle power, is built into the car body at the letter band height and has adjustment as to direction. It can be dimmed by means of a switch within easy reach of the operator.

The car is designed with a special view to being cared for in service by railroad men. United States standard threads are used on all bolts and cap screws. In case of heavy engine repairs provision is made for the ready removal of either engine and the substitution of a spare unit without the loss of a run. A feature of the engine

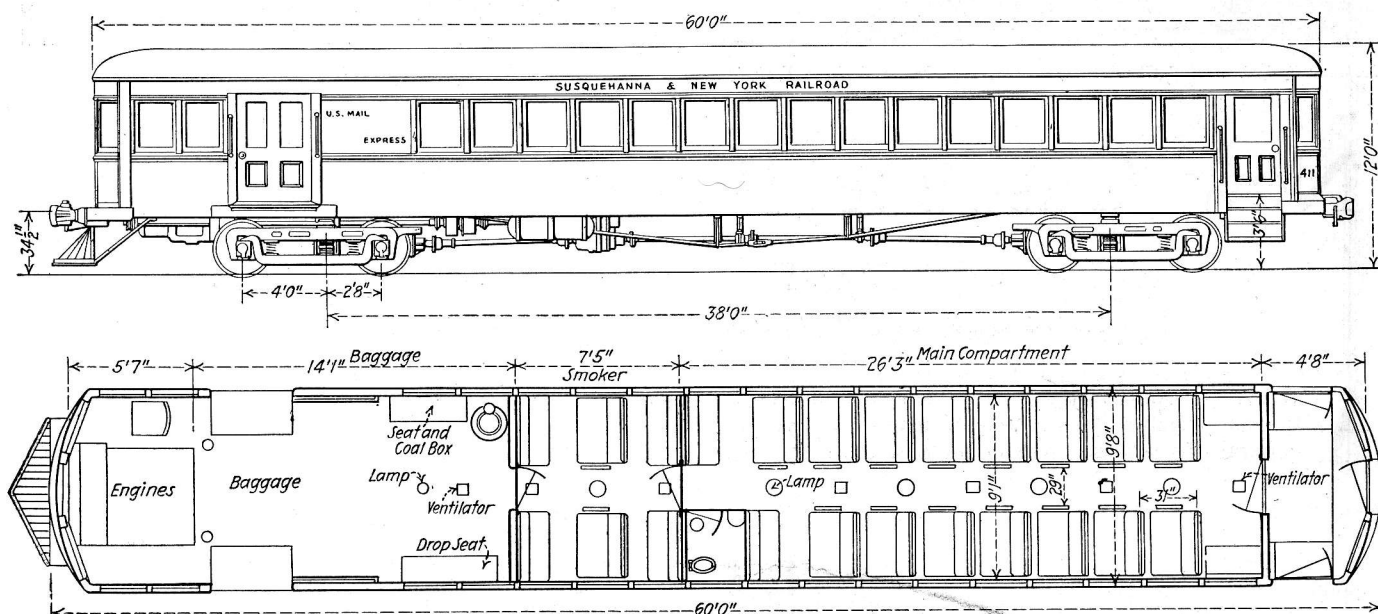
drive shafts from the transmission connect through universal joints with the drive housings on each of the two inner axles. Here the direction of motion is changed by large capacity mitre gears, the final drive of the axle

#### SPECIFICATIONS OF THE CAR

##### General Dimensions:

Length over end sills.....	60	ft.
Width over posts .....	9	ft. 8 in.
Length of baggage compartment.....	19	ft. 8 in.
Seating capacity of passenger compartment.....	50	
Seats in baggage compartment for.....	7	
Seat length .....	40	in.
Width of aisle .....	29	in.
Truck centers .....	38	ft.
Truck wheel base .....	6	ft. 8 in.
Diameter of wheels .....	30	in.
Height from rail to top of roof.....	12	ft.
Height from rail to floor .....	42	in.
Coupler height .....	34½	in.
Weight of car .....	61,000	lb.
2 Climax motors (75 hp. each).....	5½ in. x 7 in.	cyls.

being by hardened 7½-deg. helical gears of three pitch and 5-in. face. Mechanical efficiency is increased by the liberal use of anti-friction bearings, 54 of which are used in the car. There are 42 Timken roller bearings to carry



Floor Plan and Elevation of the Smalley Rail Car—The Engines, Transmission Truck Centers and Offset Are Indicated

control is its simplicity. All the functions of starting, stopping or clutching in the engines are performed by means of a single lever so arranged that the different acts cannot be carried out in the wrong sequence. The engines are kept in step by a synchronizer designed to prevent racing when the second engine is started up or de-clutched. Twin disc type clutches are used.

Another feature is the construction of the two radiators of sectional cores removable from the front of the car. In case of injury any section can be removed and a spare section quickly substituted.

Flexibility and wide range of speeds is provided in the transmission. Four primary speeds are available in each of three ranges, the highest speeds forward and in reverse being 63 miles an hour and 48 miles an hour respectively. These speeds are obtained at an engine speed of 1150 r.p.m. The transmission is located at the rear of the forward truck and drives to both trucks, gear changes being made by means of sliding keys.

A patented over-run drive arrangement eliminates the power loss due to uneven rolling of the wheels of two driving axles when connected by a rigid power drive. Tabular

the shock loads and 12 ball bearings to reduce friction at other points.

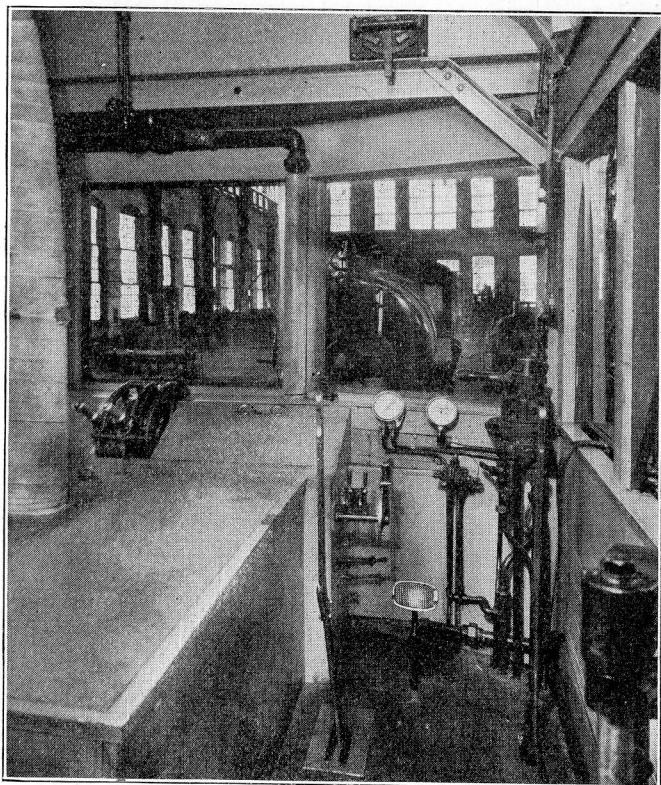
Positive lubrication is provided to all bearing surfaces. The engines have drilled crank shafts with force lubrication, indicated by pressure gages in plain view of the driver. The transmission and axle drive units have plunger oil pumps supplying all moving parts with a continuous flow of oil which cuts down friction and gear noise. This system permits the use of light oil in place of the usual heavy grease and make a material reduction in frictional resistance, especially in cold weather. The journal boxes use light oil and are provided with oil slingers to utilize practically all the oil before the bearings suffer for lack of lubrication.

Straight and automatic air brake equipment is provided, of the Westinghouse A. M. M. type. The engineer's valve is at the right of the driver and there is a conductor's valve in the rear vestibule. A 12 to 1 ratio hand brake with drop handle is located convenient to the driver. Two 12-in. by 6-in. brake cylinders furnish braking power, one to each truck, operated by a common triple valve. This arrangement is said to save 500 lb.



in the weight of foundation brake rigging and is a safety feature since either truck brake will hold the car.

A 50-lb. locomotive type bell is located forward on the car roof as is also a Strombos horn. The Westinghouse air compressor of 12 cu. ft. capacity is driven directly from an extension to the engine shaft. The car is heated by a Peter Smith hot water heating plant located in the baggage room, aluminum radiating coils being used in the passenger compartment. Copper coils connected with the heating system are placed in the engine radiators for use in extremely cold weather. Both ends of the car are

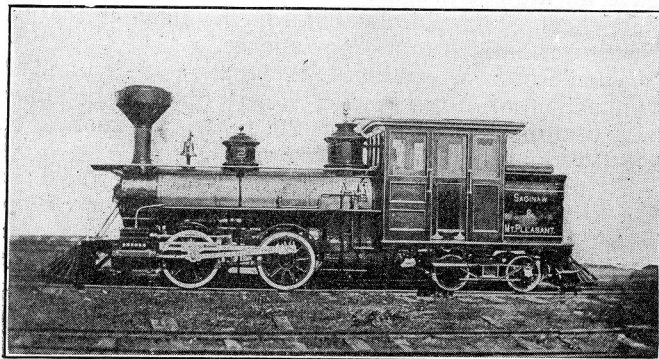


View Showing Location of Controls for Both Engines—Air Brake Valve and Headlight Switch at the Top

supplied with automatic couplers of M. C. B. dimensions but light weight. The rear couplers are equipped with draft gears for trailer hauls.

The Susquehanna & New York car left Chicago over the Pennsylvania, making the trip to Williamsport, Pa., without the addition of water or the necessity of any adjustment. It is said to have run from Gary, Ind., to Crestline, Ohio, 253 miles, in 6 hrs. 23 min. including a stop of 20 min. to take on fuel at Van Wert, Ohio.

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Built 1879—3 ft. gage

## Freight Car Loading

WASHINGTON, D. C.

**R**EVENUE freight car loading in the week ended December 12 amounted to 1,008,824 cars, an increase of 51,400 cars as compared with the corresponding week of last year and an increase of 109,067 cars as compared with 1923. This was the 20th week this year in which loadings have exceeded the million-car mark and the second time on record in which that mark has been exceeded in December. The loading for corresponding weeks in the two preceding years was exceeded in all districts except the Northwestern, where there was a slight decrease as compared with 1923, and in most classes of commodities. Livestock showed a decrease as compared with last year and 1923 and coal showed a slight decrease as compared with last year. Grain and grain products loading showed an increase of 5,910 cars as compared with last year and miscellaneous freight showed an increase of 34,577 cars as compared with last year and an increase of 57,969 cars as compared with 1923. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

REVENUE FREIGHT CAR LOADING—WEEK ENDED DECEMBER 12, 1925			
Districts	1925	1924	1923
Eastern .....	222,609	220,773	220,764
Allegheny .....	199,174	188,885	186,325
Pocahontas .....	59,716	50,350	36,745
Southern .....	165,263	150,607	135,545
Northwestern .....	117,764	115,723	118,013
Central Western .....	165,194	155,122	141,708
Southwestern .....	79,104	75,964	60,657
Total Western .....	362,062	346,809	320,378
Commodities			
Grain and grain products .....	58,552	52,642	50,670
Livestock .....	37,415	43,240	40,800
Coal .....	191,884	192,394	176,128
Coke .....	16,391	11,313	11,312
Forest products .....	72,211	71,853	67,381
Ore .....	12,540	11,621	11,090
Mdse., l.c.l. ....	259,389	248,296	239,903
Miscellaneous .....	360,442	325,865	302,473
Total .....	1,008,824	957,424	899,757
December 5 .....	1,020,873	969,485	913,921
November 28 .....	923,213	879,131	835,081
November 21 .....	1,057,674	1,010,919	990,299
November 14 .....	1,050,758	1,016,843	992,050
Cumulative total 50 weeks .....	49,508,997	46,986,455	48,319,067

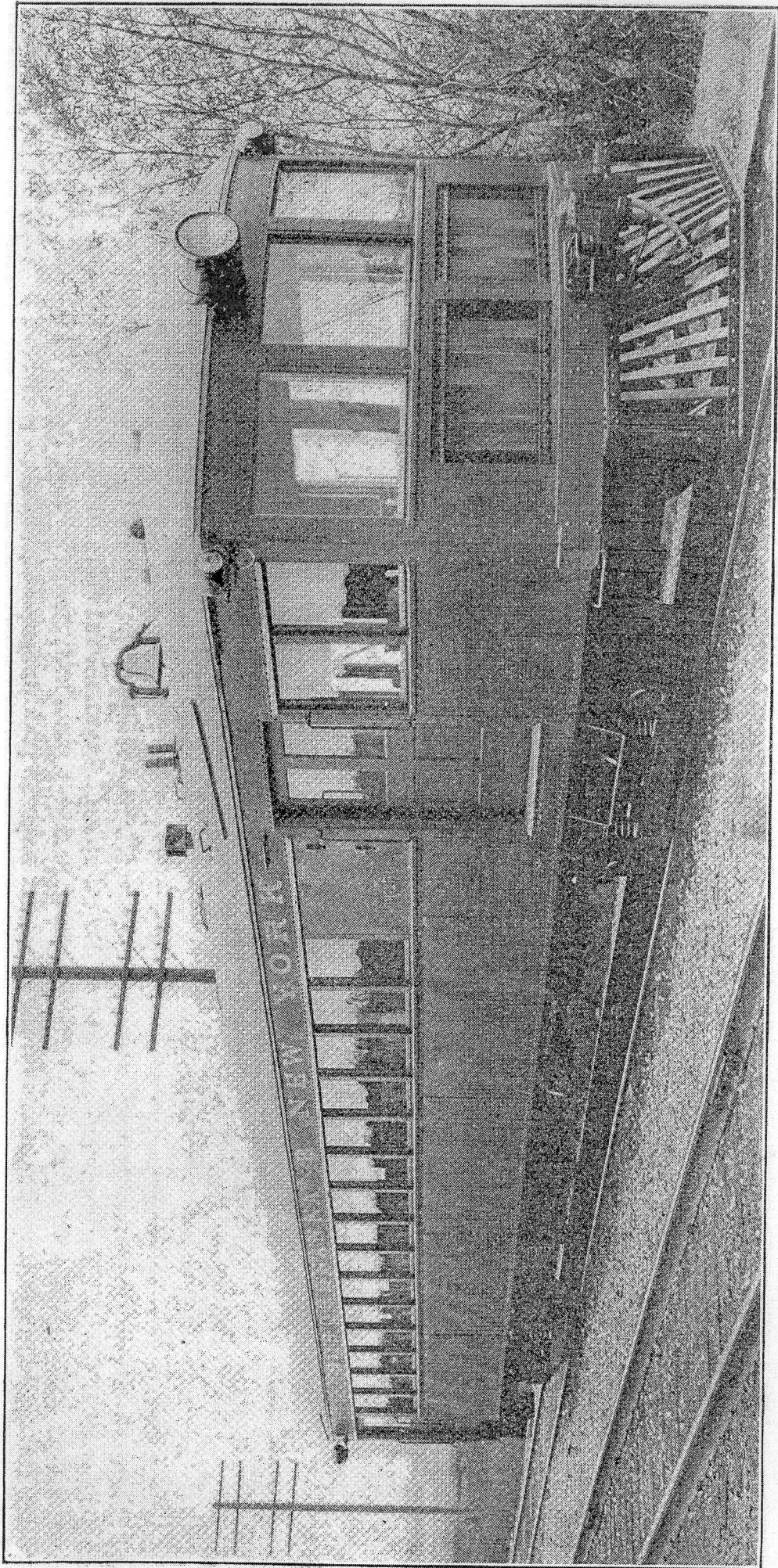
The freight car surplus for the week ended December 7 averaged 159,897 cars, an increase of 23,101 cars as compared with the week before. This included 54,277 coal cars and 69,292 box cars. The Canadian roads for the same week had a surplus of 7,270 cars, including 4,500 box cars.

### Car Loading in Canada

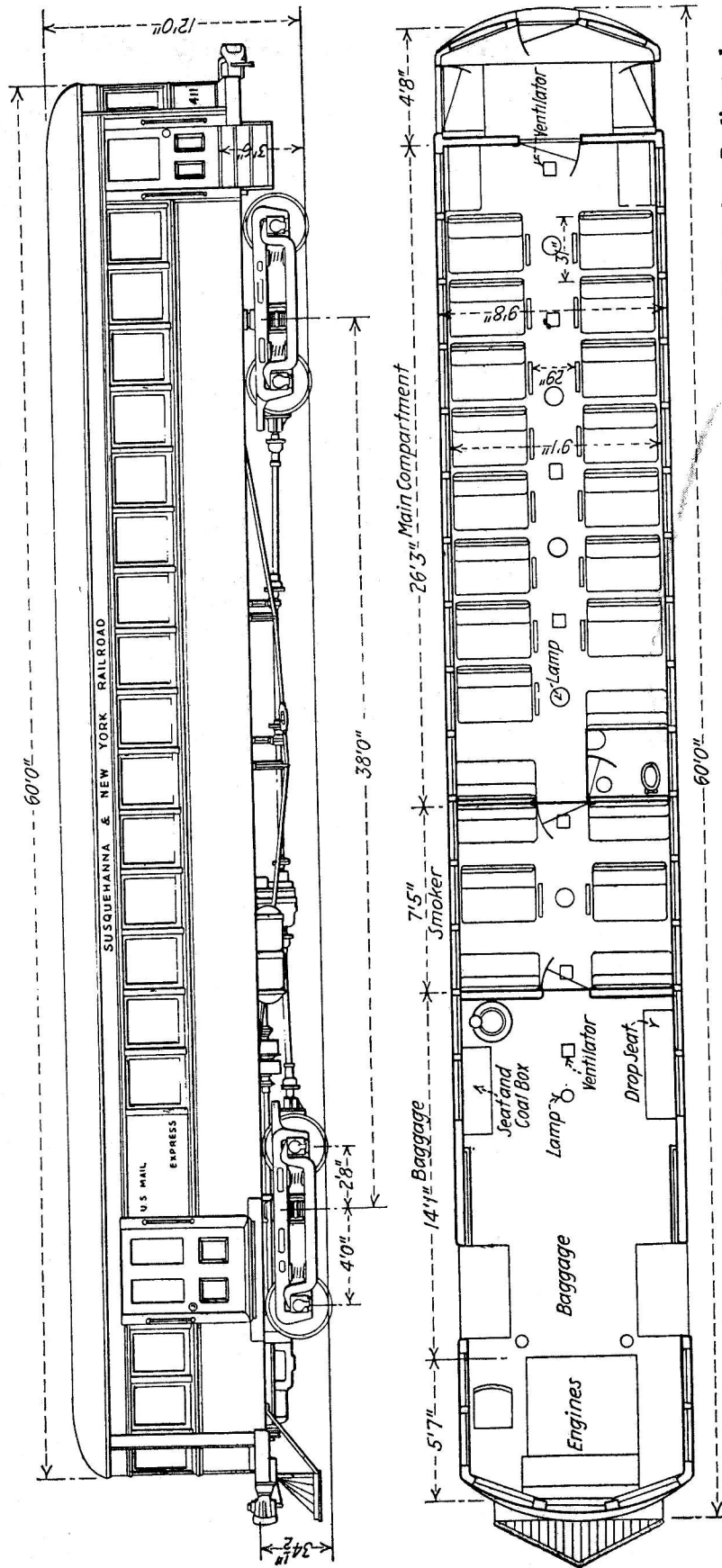
Revenue car loadings at stations in Canada for the week ended December 12 totalled 69,449, showing a seasonal decline of 3,159 cars from the previous week. Grain loadings continued heavy, that week being the sixth consecutive week and the ninth week this year exceeding 20,000 cars. Car loading showed a revival with 7,660 cars. Compared with the same week last year there was an increase of 14,545 cars, grain accounting for 10,247 cars.

Commodities	Total for Canada			Cumulative Totals to Date	
	Dec. 12, 1925	Dec. 5, 1925	Dec. 13, 1924	1925	1924
Grain and grain products....	20,249	21,331	10,002	480,837	473,493
Live stock .....	2,975	3,087	3,645	123,838	121,865
Coal .....	7,660	6,731	6,446	230,389	278,692
Coke .....	469	488	297	15,543	11,976
Lumber .....	2,867	3,167	2,951	176,093	179,017
Pulpwood .....	1,641	2,196	1,581	123,605	120,765
Pulp and paper .....	2,302	2,493	2,161	103,177	98,412
Other forest products.....	2,703	2,424	2,247	140,332	126,885
Ore .....	1,319	1,317	1,050	71,141	62,854
Merchandise, L.C.L. ....	15,835	16,277	14,505	765,729	731,109
Miscellaneous .....	11,429	13,097	10,019	648,036	609,581
Total cars loaded.....	69,449	72,608	54,904	2,878,720	2,814,649
Total cars received from connections .....	34,320	34,177	32,405	1,662,947	1,573,692





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