

## DELAWARE AND HUDSON RAILROAD

The Delaware and Hudson railroad has, in freight service, a consolidation locomotive (probably the largest of this type in the world) equipped to burn pulverized fuel. The locomotive was designed for the use of anthracite culm, but it is understood that a mixture of bituminous and anthracite coal is being used. The locomotive has 63-inch driving wheels, 27 x 32-inch cylinders, 12-inch piston-valves and a boiler with a working pressure of 195 pounds<sup>1</sup> per square inch. The diameter of the boiler at the front end is 86 inches and a fire box 114 inches by 126 $\frac{1}{8}$  inches provides a grate area of 99.8 square feet. Total weight, 293,000 pounds; weight on drivers, 267,000 pounds; total heating surface, 3,814 square feet; traction power, 66,100 pounds. The superheater has 43 elements and a heating surface of 793 square feet. The tender is of the 8-wheel type, with water capacity of 9,000 gallons, fuel capacity of 14 $\frac{1}{2}$  tons, and weighs, in working order, 193,200 pounds.

The locomotive was built specially for use with pulverized fuel by the American Locomotive Co., and was equipped with the apparatus of the Locomotive Pulverized Fuel Co., New York.

The following is the result of tests on this locomotive:

Class of locomotive.....	2-8-0
Number of trips averaged.....	11
Miles run, average each trip.....	19.9
Adjusted train ton miles.....	49,686
Total water used, pounds.....	52,975
Total coal used.....	11,028
Boiler pressure, pounds per square inch.....	205
Average steam pressure, per square inch.....	192
Apparent evaporation.....	4.84
Lbs. of coal used per 1,000-ton miles.....	221.9
Lbs. of coal used per engine mile.....	552.9
Average speed, miles per hour.....	11.7
Service.....	Freight
Diameter of exhaust nozzle, inches.....	6 $\frac{1}{2}$

The temperature of the water at start was 200° and the time taken to obtain maximum pressure was 45 minutes.

The kind of coal used was a mixture of 60 per cent anthracite and 40 per cent bituminous. The following is an analysis of the mixture:

Moisture.....	0.36 per cent
Volatile matter.....	20.73 "
Fixed carbon.....	62.65 "
Ash.....	16.26 "
	100.00 "
Sulphur.....	1.00 per cent
British thermal units.....	13,000

Fineness of pulverized coal:

Percentage through 100-mesh screen.....	99
Percentage through 200-mesh screen.....	89

<sup>1</sup>The pressure has been increased to 210 pounds per square inch.