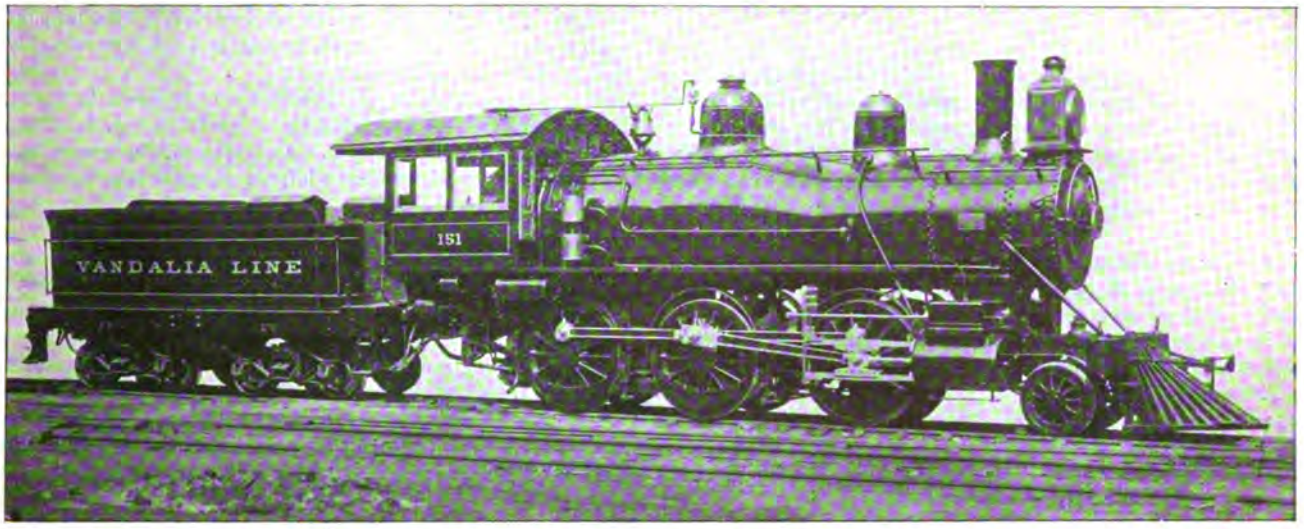

MOGUL LOCOMOTIVE FOR THE VANDALIA LINE.

Built by the Pittsburgh Locomotive Works. **Mr. W. C. Arp, Superintendent of Motive Power.**

air is led from the hood near the roof, at the end of the car, as before, to a box under the steam pipes, and rises through openings into the box containing the pipes, from which it passes into the car through openings in the floor. These apertures are 4 inches long and 1¼ inches wide and 4 inches apart. The ventilators must have the same capacity for discharging the air, and 20 of these are distributed along the roof of the car. The result obtained with a car so equipped was a circulation of 90,000 cubic feet of air per hour. The snag which was struck was that, with such a supply of air, the temperature of the car was only 40 degrees, when the outside air was zero.

The company had reached a point where it could furnish one half the theoretical amount of air required, but could not warm it in zero weather. It was thought that during extreme weather a little poorer ventilation might be endured for a month or two. The question of smoke, cinders and dust had not been touched thus far.

The problem now stands thus: It is possible to get a great deal more air into a car than by any other known system; if passengers could content themselves with 20,000 or 30,000 cubic feet instead of 90,000 per hour, the air could be supplied properly heated and the system could be put on cars at once. On the other hand, there are 2,500 passenger cars to be equipped, and it is a very expensive operation. It has, therefore been deemed advisable to experiment further and exhaust the subject before making any change.

New Mogul Locomotives on the Vandalia Line.

Some months ago the Vandalia line received some new mogul locomotives from the Pittsburgh Locomotive Works, and through the courtesy of Mr. W. C. Arp, Superintendent of Motive Power, we have received the diagram and photograph given herewith. In a letter to us regarding them, Mr. Arp says: "These engines are used in freight service on the main line between Indianapolis and St. Louis. There are practically three divisions, but our intention is to run them 165 miles from Terra Haute to St. Louis, and 75 miles from Terre Haute to Indianapolis. On the division between Terre Haute and Indianapolis the engines are rated at 950 tons; on the Western division, 1,000 tons. The performance of these engines is very satisfactory."

The engines have 20 by 26 inch cylinders and driving wheels 62 inches in diameter. These wheels are of a more suitable diameter for good freight work than smaller ones would be, when the cylinders are large enough to turn them, and will reduce the cost of maintenance. The boilers have a total of 2,129 square feet of heating surface and the grate area is 30.6 square feet. Some of the leading dimensions are given in the outline sketch and others will be found below:

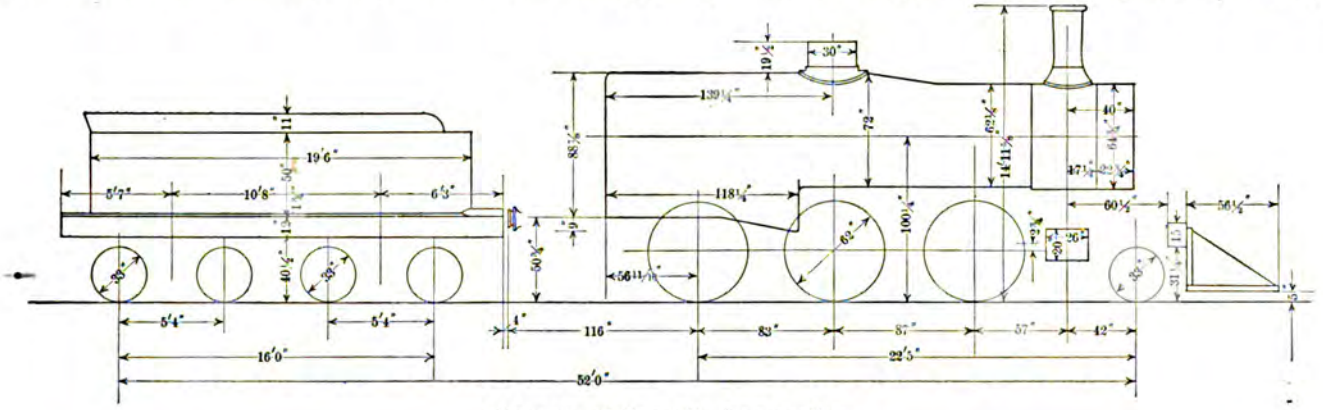

Diagram of Vandalia Locomotive.

Type	Mogul
Fuel	Bituminous coal
Gage of track	4 feet 8½ inches
Total weight of engine in working order	142,000 pounds
" " " " on drivers	127,000 pounds
Driving wheel base of engine	14 feet 2 inches
Total " " " "	22 feet 5 inches
" " " " and tender	51 feet 8 inches
Height from rail to top of stack	14 feet 11⅝ inches
Cylinders, diameter and stroke	20 by 26 inches
Piston rods	Steel, 3½ inches diameter
Type of boiler	Extended wagon top
Diameter of boiler at smallest ring	62 inches
" " " " back head	72 inches
Crown sheet supported by one-inch radial stay bolts, 1 inch diameter, spaced four inches from center to center.	
Number of tubes	318
Diameter " "	2 inches
Length of tubes over tube sheets	12 feet
" of firebox, inside	108 inches
Width of " "	41 inches
Working pressure	185 pounds
Kind of grates	Cast iron, rocking
Heating surface in tubes	1,950 square feet
" " in firebox	179 " "
Total heating surface	2,129 " "
Grate area	30.6 " "
Diameter of driving wheels outside of tires	62 inches
" and length of journals	8½ by 11 inches
" of engine truck wheels	33 inches
" and length of journals	6 by 10 inches
Type of tank	Level top
Water capacity of tank	4,000 United States gallons
Fuel " "	280 cubic feet
Weight of tender with water and fuel	81,400 pounds
Type of brakes	Westinghouse American