Continuous-Current Electrification on Steam Railways and in Trunk Line Service.

Road.	Miles: Of line.	Miles: Single track.	Line voltage.	Motor cars: No.	Motor cars: H.p.	Locomotives: No.	Locomotives: H.p.
New York Central	33	132	650	137	400	47	2,200
Pennsylvania	20	75	650	180	400	24	4,000
West Shore	44	106	650	20	360	..	.....
Long Island	42	125	650	137	400	2	1,200
West Jersey & Seashore..	75	150	650	68	400	..	.....
Baltimore & Ohio.....	3.7	7.4	600	..	...	2.5 5	1,600 1,100
Northeastern Railway ...	37	..	600	..	300	2	600
Mersey Tunnel	4.8	..	600	24	400	..	.....
Lancashire & Yorkshire..	18	60	600	..	600	..	.....
Great Western	5	..	600	..	600	..	.....
Metropolitan Railway	..	67	600	56	600	10	800

Car Equipment of Subway and Elevated Systems in American Cities.

The Direct-Current Third-Rail System at Approximately 600 Volts Is Used in All Cases.

Road.	Miles of single track.	Motor cars: No.	Motor cars: Horse-power.
Boston Elevated	19	219	320
Brooklyn Rapid Transit.....	71	558, 101	300, 400
Interborough Rapid Transit (New York)	190	969, 764	250, 400
Hudson & Manhattan (New York).....	12	140	320
Chicago & Oak Park Elevated.....	19.4	65	320
Metropolitan West Side (Chicago).....	51.1	15, 210	400, 320
Northwestern Elevated (Chicago).....	25.5	20, 128	250, 320
Southside Elevated (Chicago).....	36.5	150, 70, 150	180, 150, 110
Philadelphia Rapid Transit.....	11	100	250

Three-Phase Electrification on Steam Railways and in Trunk Line Service.

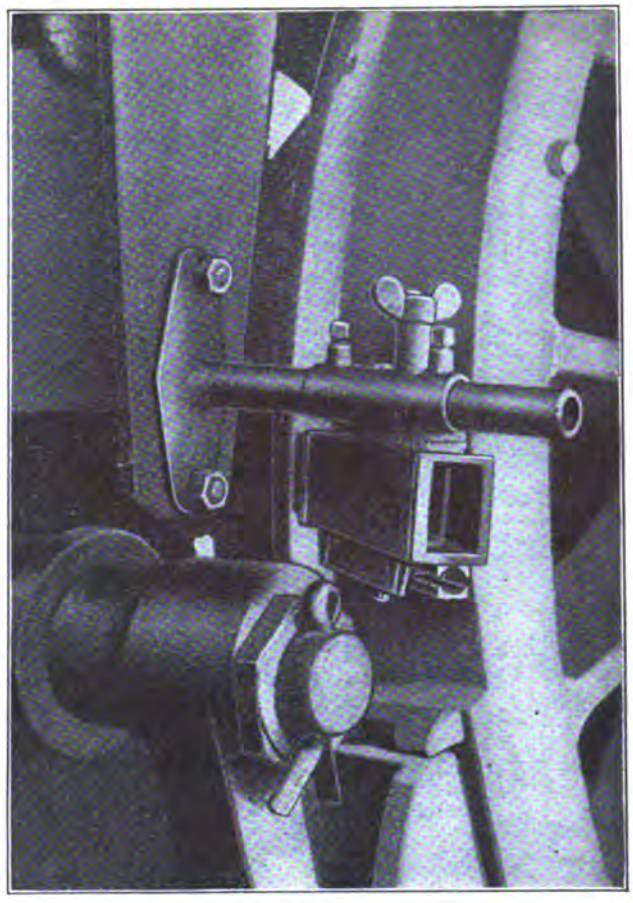
Road.	Miles: Of line.	Miles: Single track.	Line voltage.	Motor cars: No.	Motor cars: H.p.	Locomotives: No.	Locomotives: H.p.
Gt. Nor. (Cascade tunnel)	4	6	6,600	..	...	4	1,900
Italian State Railways:							
Valtelina Railway	66	..	3,000	10	400	2 7	800 1,500
Giovi Railway	12.4	37.3	3,000	..	...	20	2,000
Mt. Cenis Tunnel	4.4	..	3,000	..	...	10	2,000
Savona Ceva	..	..	3,000	..	...	10	2,000
Swiss Federal Railways:						2	1,100
Simplon Tunnel	13.7	14.3	3,000	..	...	2	1,300
Garagal Santa Fe (Spain)	13.1	14.4	5,500	..	...	5	320

DRIVING WHEEL FLANGE LUBRICATOR.

On roads having numerous curves the matter of sharp flanges is one of the most important and expensive features of maintenance that have to be contended with. Recently the practice of lubricating the flange of a driving wheel has been introduced with very decided success and it has been found that a locomotive equipped with a flange lubricator will in some cases give twice the mileage before it needs to be taken in for tire turning that was previously possible. While, of course, the expense and delay in turning tires is the most important feature in this connection there is also some gain in the power of the locomotive, there is considerably less wear on the rail heads and the general machinery of the locomotive is not strained as much.

In applying a flange lubricator it is of particular importance that it shall operate and be of such form that there will be no possibility of getting any of the lubricant on the wheel tread or the head of the rail. Therefore, while oil has in certain instances been used with some success, a solid block of lubricant, as a stick of graphite, is much more satisfactory.

In the accompanying illustration is shown a wheel flange lubricator which has proved remarkably successful in practice. Its simplicity and durability are easily recognized from the photograph and it will be seen that it is provided with all necessary adjustments and so designed that it can be easily located to avoid sand pipes, brake hangers, and other parts. It is recommended by the manufacturers of this appliance, the Collins Metallic Packing Co., of Philadelphia, that it be set at an angle of 25 degs. with the axle, and while it can be located on either the front or back of the wheels, they recommend that it be on the front of the leading wheel and on the rear of the back driving wheel, and that it also be set slightly above the center line. There is a compression latch on the bottom of the device which engages the lubricating block. One setting of the block is sufficient for two or three hundred miles' service, and pulling the compression device back one notch can be done in an instant and prepares the lubricator again for an equal service. A new block can also be applied very easily. The manufacturers report



WHEEL FLANGE LUBRICATOR APPLIED TO FRONT DRIVER.

that one lubricating block will make from 2,500 to 3,000 miles on a high speed passenger and 3,500 to 4,000 on a switch engine. The heating of the tire, due to excessive braking, does not affect the efficiency of the lubricator.

ONE LOCOMOTIVE PULLS 120 LOADED CARS.

On August 23 Pennsylvania locomotive No. 1221, Class H8b* left Altoona, east bound, with 120 loaded cars, the gross tonnage of cars and lading being 8,850 tons. The train left the yard without assistance and the locomotive handled it alone to the Enola yard, a distance of 127 miles. The train on arriving consisted of 119 cars, one having been set out at Huntingdon on account of a broken brass, the gross tonnage then being reduced to 8,778 tons.

This train was operated on the following schedule:

Miles.	Station.	Time Arrived.	Time Left.	Remarks.
0	Altoona	....	7.38	
25.6	Warrior Ridge	8.45	9.09	Took water.
...	Huntingdon	9.22	9.42	Set out car.
19.4	Vineyard	10.51	11.25	Engine cut off for water.
27	Denholm	12.53	2.05	Took coal and water.
26.1	"BW" ..... (2.4 miles west of Bailey)	3.28	....	Stopped for water.
4.1	"BD" ..... (1.7 miles east of Bailey)	....	4.0	
15.1	West End Susquehanna Bridge.		4.47	
120.9		* 4.47 P.M.	7.38 A.M.	Total included time.

Running time—6 hours 29 minutes.
Average speed—19 miles per hour.

This train, because of its extreme length, was fitted with a telephone between the locomotive and the cabin car and was handled under the direction of the officials who accompanied it.

WESTERN RAILWAY CLUB.—At the regular monthly meeting held on Tuesday, September 20th, a paper entitled "Automatic Connectors for Freight and Passenger Train Cars" was presented by Willis C. Squire.

* See AMERICAN ENGINEER, Feb., 1910, p. 69.