

they have in the past, but it is still a not infrequent cause of damage. Fires starting from such a cause would, however, be considered as caused by negligence and would render the company subject to action for damages under the common law.

Locomotive Equipment.

Sparks from the locomotives are the most frequent cause of fires along the railways. These may be caused by the use of inferior fuel. Wood or lignite coal will, with any screen or device, almost certainly throw fire from the smoke-stack, and it is in the newer districts back in the bush that railway companies are most likely to use such fuel. The regulations of the Dominion Railway Commission provide that no railway company subject to the legislative authority of the Parliament of Canada shall burn lignite coal on its locomotive engines as fuel for transportation purposes.

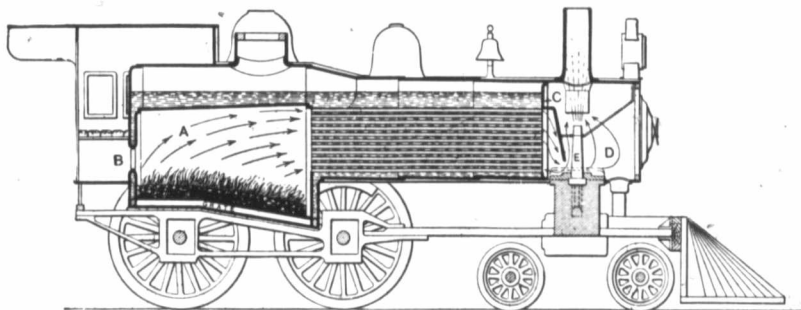


FIG. 2.

Longitudinal section of Locomotive. (A, fire-box; B, cab; C, front head of boiler; D, smoke box or front end; E, pipe from which exhaust steam escapes. Baffle-plate may be seen just below C and behind E.)

Lignite coal is defined as including all varieties of coal the properties of which are intermediate between wood and coal of the older formations. The penalty for violation of this rule is a fine of twenty-five dollars, which hardly seems adequate.

The construction and equipment of the locomotive have much to do with the tendency to throw sparks. In England the inclination has been to depend more on the plan of construction of the locomotive than on the arresting screens. In Canada and the United States screens are considered a necessity and are provided for by statutes and regulations. In the modern locomotive there is an extension smoke-box at the front end. Sparks passing through the boiler tubes forward toward the smoke-stack strike against a plate inclined downward, called a baffle plate, and are thrown to the bottom of the smoke-box whence they rise against the netting stretched across the smoke-box to divide it from the smoke-stack and are again thrown back, and so are dashed around until they are finally worn down small enough to pass through the openings of the netting. The regulations of the Dominion Railway Commission provide that every locomotive engine having an extension smoke-box shall be equipped with netting mesh, the mesh to be not larger than $2\frac{1}{2} \times 2\frac{1}{2}$ per inch of No. 10 Birmingham wire gauge, and to be placed in the smoke-box so as to extend completely over the aperture through which the smoke ascends,—the openings of the said mesh not to exceed a quarter of an inch and one-sixty-fourth of an inch to the square inch. When the diamond stack, the old style, is used the mesh required is 3×3 per inch of No. 10 Birmingham wire gauge and it must be placed across the stack so as to entirely cover it. The opening allowed in this case is three-sixteenths and one-sixty-fourth of an inch to the square inch.