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The June Railway Mechanical Conventions at Atlantic City.

The two great railway mechanical conventions of the year, the Master Car Builders' Association and the American Railway Master Mechanics' Association, were held in Atlantic City, N. J., the former on June 14 to 16 and the latter on June 19 to 21. The most important features of these annual conventions are the reports of the standing and special committees, and the individual papers presented. The principal ones are given on this and following pages, either in full or in abstract.

Use of Powdered Fuel in Locomotives.

The American Railway Master Mechanics' Association committee, C. H. Hogan, Asst. Supt. Motive Power, New York Central Lines, East of Buffalo, chairman, reported as follows:—The use of powdered fuel in manufacturing plants has proved quite successful and has passed beyond the experimental stage. After years of experimental and development work, apparatus for the drying and pulverizing of coal has been perfected. The problems to be encountered in the use of powdered fuel in locomotives are more serious, on account of the necessity for storage of powdered fuel and the limited restrictions of space available on a locomotive. The first application of such a device for burning powdered fuel on a steam locomotive was made about a year ago, and special apparatus had to be designed, tested, improved and perfected to make it adaptable to locomotive practice, therefore discouragement should not be felt because in so short a time there are not a large number of locomotives in regular successful service burning powdered fuel.

None better than the members of this Association know the great difference in the burning of run-of-mine coal from different sections of this country, and even different mines in the same section; therefore they will readily appreciate at least that similar difficulties must be encountered and overcome in burning in powdered form the same coals containing various amounts of moisture, ash, etc., besides the added process of actually pulverizing the fuel. It is easily within the memory of all as to the difficulties at first experienced in the burning of oil in the limited confines of a locomotive fire box, and the apparatus used successfully; therefore today it would hardly be recognizable to the early designers and experimenters therein.

Perhaps most would agree today that but for the difficulty in obtaining fuel oil, and its excessive cost, the use thereof would be much greater than it is; nor is the end of increased cost of oil in sight, since methods have been devised for producing gasoline therefrom; hence it is believed that the perfection of apparatus for burning powdered fuel with equal advantage offers an acceptable substitute, and on account of the greater supply of coal and its less cost, particularly the smaller sizes, many of which at present are entirely wasted, the field for the use of powdered fuel would appear to be much more extensive. The results to be obtained from successful use of pulverized fuel in locomotives may be briefly summarized as follows: Operation free from smoke, cinders and sparks; ready maintenance of fuel boiler pressure, increased boiler efficiency, decreased fuel cost, saving of manual labor in stoking, elimination of grates, as well as ash pit delays and expense.

The New York Central locomotive, being the first equipped for burning powdered fuel, has been used chiefly for the development and improvement of apparatus necessary for supplying powdered fuel to the fire box and in drafting the locomotive. This is a 10 wheel superheater engine, and has been used in helper and in freight service. Its leading features are as follows:—

Weight on drivers, 158,000 lb.
Tractive power, 31,000 lb.
Cylinders, 22 by 26 in.
Driving wheels, 69 in. diam.
Boiler pressure, 200 lb.
Grate area, 54 ft. 9 in.
Superheater heating surface, 540 sq. ft.
Total boiler heating surface, 3,188 sq. ft.

The Chicago & North Western locomotive, equipped less than a year ago, is Atlantic type, superheated, and of the following general description:

Weight on drivers, 96,000 lb.
Tractive power, 21,850 lb.
Cylinders, 20 by 26 in.
Driving wheels, 81 in. diam.
Boiler pressure, 185 lb.
Grate area, 46.3 sq. ft.
Superheater heating surface, 428 sq. ft.
Total boiler heating surface, 2,187 sq. ft.

This locomotive has been used in regular local and through passenger service, and a comparative test made with a duplicate locomotive burning coal on grates has thus far proved favorable to the powdered fuel, especially in saving fuel in firing up, movement at terminals, dead time, etc. This can readily be appreciated when it is recalled that on most locomotive coal tests it has been found that about 20% was used for work other than while pulling the train, or left in the fire box at the end of the run.

The Delaware & Hudson Co. has just received from the builders a consolidated locomotive equipped for the burning of powdered fuel, the following being a general description of same:—

Weight on drivers, 267,500 lb.
Tracive power, 61,400 lb.
Cylinders, 27 by 32 in.
Driving wheels, 63 in.
Boiler pressure, 195 lb.
Grate area, 99.8 sq. ft.
Superheater heating surface, 793 sq. ft.
Total boiler heating surface, 3,814 sq. ft.

It was hardly to be expected that your committee would be able to render at this time a comprehensive or conclusive report on the burning of pulverized fuel in locomotives, a matter so new to the art in locomotive practice; however, we wish it understood that not a little advancement has taken place in this very short period of time and submit the above merely as a report of progress and ask for the continuance of the committee.

Report of Committee on Car Construction.

The Master Car Builders' Association committee, W. F. Keisel, Jr., Asst. Mechanical Engineer, Pennsylvania Rd., Altoona, Pa., chairman, reported as follows: In the report made in June, 1915, a box car design was submitted and a request made that before Dec. 1, 1915, recommendations for changes and other criticisms, or approval of design, be sent to the chairman. Replies to this invitation were quite meagre, but indicated a desire on the part of railway companies to await the results of the development of the box car design which was under way by the American Railway Association subcommittee.

As members of your committee were also acting in an advisory capacity with the American Railway Association subcommittee it was deemed advisable to do nothing for the present in the development of the Master Car Builders' design of box car, but to assist, as far as possible, in perfecting the American Railway Association box car design in line with the work already accomplished on the proposed M. C. B. box car. In regard to this subject, we can only report progress. No other subjects were before your committee during the past year, as all of the items covered by our previous report, with the exception of one small item, were, by letter ballot, adopted by you as Recommended Practice.

The proper distance between centre sills of steel cars is one that will require serious consideration, as we should adopt either the present spacing generally in use, which is 12⅞ in., or determine on some other spacing that can be considered fixed for a number of years. The spacing of 12⅞ in. permits a car 40 ft. long to pass around a curve having 50 ft. radius without interference between the wheel flanges and centre sill flanges. It will readily be seen that if the distance between centre sills is increased, or if the distance between centres of trucks is increased, the radius of curvature around which car will pass will have to be greater. The distance between centre sills affects the work of the Coupler Committee and Draft Gear Committee, in addition to that of the Committee on Car Construction. We would recommend that the present spacing of 12⅞ in. be adopted as Recommended Practice, and that draft gear and couplers be made for this spacing of centre sills.

Dimensions for Flange and Screw Couplings for Injectors.

The American Railway Master Mechanics' Association committee, M. H. Haig, Mechanical Engineer, Atchison, Topeka and Santa Fe, chairman, reported as follows: The report of the committee presented before the 1915 convention, was referred back for further consideration. The original members of the committee were continued and the committee was