CORRESPONDENCE.

METHODS OF BOILER FIRING.

WAKERVILLE, ONT., Feb. 27, 1894.

Editor ELECTRICAL NEWS

SIR, I notice in the last number of the NEWS an item signed "R. B.," the writer of which gives his method of firing slack coal. I cannot agree with him on some points. In the first place he says he keeps his fire about 7 inches thick; I have fired slack coal for the last eleven years, and if my fire got 7 inches thick I would think it needed cleaning badly. I have found by experience that the thinner the fire the better as long as the grates are kept covered. Now, "R. B." says he stirs his fire every second fire he puts on, that will mix the cinders with the fire, and very soon he will be burning more coal, almost one third more than is necessary. When his fire gets a little thick if he would take a slice bar with a flat hook and run it under the fire it would force the dirt through the grates, then break the fire down and fire. I argued exactly the same points before the Railway Committee, at Ottawa, on several occasions between September, 1892, and very light, he will have no trouble to make steam if his boilers are large enough.

H. K.

RIGHTS OF ELECTRIC RAILWAYS CROSSING STEAM RAILWAYS.

TORONTO, March 3rd, 1894.

Editor CANADIAN ELECTRICAL NEWS

SIR, In your issue of March, I notice you repeat what a number of newspapers also stated, that Mr. B. B. Osler "raised a novel contention" in stating that an electric car on a highway was under same conditions and rights, as to carrying passengers, as any carriage or bus, etc. While all electric railway men quite agree with Mr. Osler in this respect, it is not a "novel contention," as a reference to the proceedings of the Railway Committee will show that Mr. A. W. Atwater, barrister, of Montreal, who was acting for the Davenport Street Railway Co. and City and Suburban Electric Railway Co., of Toronto, April, 1893, and his skill in advocating this "novel contention" doubtless gained for his clients the concessions from the steam roads that were made.

Yours truly,

ELECTRICIAN.

THE NEW BLAKE PUMPING ENGINES AT TORONTO.

TORONTO, March 16, 1894.

Editor ELECTRICAL NEWS

SIR, I notice a communication in the March issue of the NEWS from "J. W. R.", Hamilton, Ont., re the new Blake pumping engines at the main pumping station, Toronto water works.

In addition to your answer to the enquiry contained in this communication, I would like to say that the new cylinders are now being placed on the pumps at the suggestion and cost of the manufacturers. The engines were not shut down from the fact that they were not considered safe, but the other three set of pumps were in good condition, and in the winter months are perfectly able to handle sufficient water to supply the city.

I feel perfectly safe in saying that these pumps are the most economical pumping engines in Canada to-day. The duty of a pump is the amount of foot lbs. that can be got for every one hundred lbs. of coal burned. Now according to a test made by Mr. John Galt, C.E. and M.E., Toronto, these pumps are giving a duty of 132,056,000 ft. lbs. for every 100 lbs. of coal burned, being in this respect fully up to the guarantee of the Blake Co. The officials of the Toronto Water Works Department must be perfectly satisfied, as I understand they have duplicated the order, the building having been prepared for two set of pumps.

I am satisfied also that neither the Hamilton, Kingston or London pumps can give any such duty as this with their present construction of steam valve mechanism. With the consent of Mr. Galt I will send to the Hamilton Association of Stationary Engineers a copy of the official test for their discussion and benefit.

I might add that this test has already been read and discussed in Toronto Association No. 1, C.A.S.E.

G. C. MOORING.

HIGH VERSUS SLOW SPEED ENGINES FOR ELECTRICAL WORK.

Editor ELECTRICAL AND ENGINEERING NEWS

SIR, In consequence of being otherwise employed I have been unable to write in answer to Mr. Robb's criticisms of a former letter. I do not propose to enter into a technical controversy as to the merits or demerits of the high speed engines as compared with smaller number of revolutions and longer stroke ones. Most of the long stroke engines are run with a greater piston velocity than the short stroke, quick running ones. I think the commercial appreciation of one kind or the other of these engines will determine their relative position more satisfactorily than any amount of argument on the question by rival claimants, who are liable to be warped in their reasons or judgment by circumstances that do not appear in the discussion.

I stated in a former letter that I knew of many places where the high speed engines had been replaced by the slow speed ones, yet I did not know of any place where the long stroke automatic engine had been replaced by the high speed one. By your permission I will mention a few of these places, which, if space allowed, or the merits of the question demanded it, could be extended indefinitely. When first I visited the Toronto Electric Light and Power Company's works on Sherbourne street, the current was generated by five or six high speed engines, in their new works there are no high speed engines Brown and Corliss engines made by the Polson Company taking their place. Their works are conducted by one of the best electrical and mechanical engineers in Canada, and we must assume that his judgment on this matter is correct, as the work have been a commercial and mechanical success.

The Toronto Electric Railway Company have a number of quick running Armington & Sims (United States) engines at work. They are now about to increase their power by 6000 h. p., and intend to put in engines of the slow speed type now building at Bertram's works, Toronto.

The Montreal Electric Railway Company are placing six Corliss engines of 600 h. p. each in position, two of which are now at work. These engines were built in Montreal as called for by the company's agreement with the city.

The Hamilton Street Railway Company have four automatic engines, three being Wheelock and one Corliss, the last put in being built by John Inglis & Sons, Toronto. The same makers are now building two Corliss engines for the Hamilton, Grimsby and Beamsville Electric Railway, and have placed two in position for the Kingston Electric Light and Power Company and one in Gananoque for the same purpose. So far as I am able to judge without prejudice one way or the other, I do not think any high speed engine in Canada can approach these for economy of fuel, oil and attendance.

The London, Ont., Electric Light and Power Company have up to a recent date run with high speed automatic engines. Recently they have put into operation two compound Wheelock engines. The Leamington Electric Light Company have also replaced theirs by a long stroke engine the manager told the writer with a reduction of one third on their fuel bill.

The Montreal Electric Light Company also had high speed engines; they are at present running with larger and economical slow speed ones.

I will not continue this list as your space forbids. The tendency of modern electrical engineering is towards larger generators and slower speeds. With regard to the high speed economical engine referred to by Mr. Robb, I assume he means the engine designed by the late Mr. Willans, of London, England. All Mr. Robb has stated in his letter has been claimed for the Willans centre valve engine, the facts of which I would not for one moment deny. I have a sectional elevation of this engine in its latest form; it is a tandem vertical triple expansion one designed for 160 to 180 lbs. steam pressure, has nine steam cylinders in three vertical rows, high, intermediate and low, acting on three cranks on the down stroke only. The central valve which distributes the steam on each side of cylinder is worked from an eccentric turned out of the solid on the centre of each crank pin, and connects to the valve through the centre of the piston rods, or what answers as a piston rod. The work on this engine is of the most elaborate description and could only be done by special tools adapted to the purpose, as all joints and surfaces have to run steam tight without packing. The greatest care would also be necessary in running them, as any want of oil or forming steam might ruin them.

These engines are very costly, very much more so than the same power would cost say of the Corliss design, and without any more economy. They would also be shorter lived as to their wear and maintenance. They are, however, sold to the navies of the world for electric purposes through the small amount of space they occupy for power and light developed.

In my letter I referred to the Armington & Sims engines running the electric light at the Parliament buildings at Ottawa. Mr. Johnson, who has charge of the electric plant there, informed me that they burned 4½ lbs. of coal per 1 h. p. per hour. Since I wrote you I have been employed to test an Armington & Sims engine built by Messrs. Nye & Whitfield, of Hamilton, two boilers built by John Inglis & Sons, Toronto, and the electric installation by the Kay company, Hamilton. I will condense my remarks by stating that a careful trial gave the following results:

The engine was 6×8, making 336 revolutions per minute, which speed was practically maintained under all loads. It ran with great smoothness loaded or light. The power developed taken from the diagrams—14.85 h. p.; the coal burned 3.78 lbs. per indicated h. p. per hour; ten, 16 candle lights per 1 h. p.; thirteen do. per electrical h. p. There was no sparking at the commutator and very little heat of armature or field windings.

I have thought it my duty to mention this in justice to those engaged in building this class of engine. This plant is in the Bank of Hamilton, Hamilton.

Although this result is a good one for a small engine, it is a long way off what can be got out of a Corliss compound or an equally good engine of any other design running at slow speed.

I have read with much interest the communication from the stationary engineers on boiler setting and kindred subjects. I