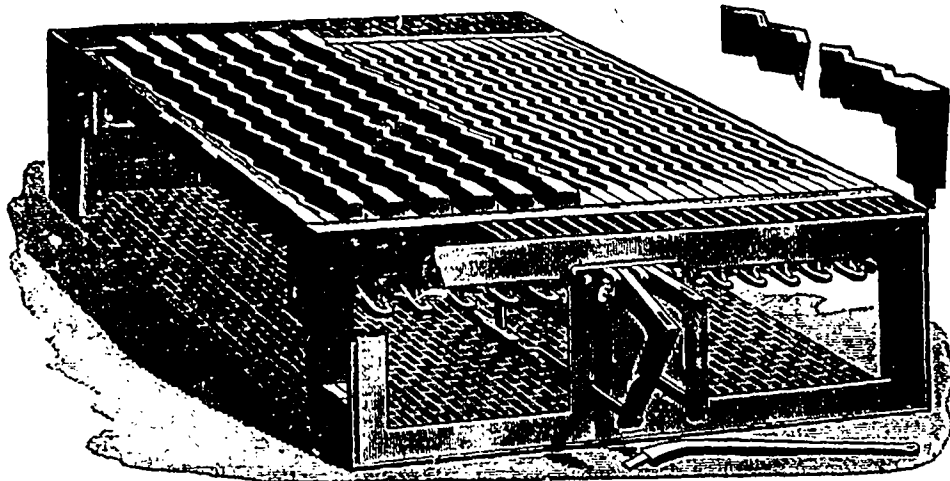


pointed Principal Toronto Technical School, resigned in 1894 on being appointed lecturer School of Practical Science; July-Sept., 1892, and May-Sept., 1893, draughtsman, bridge office, Passaic Rolling Mill, Paterson, N.J., bridges and roofs.

VOLCANIC PATENT SHAKING GRATE.

Each bar of this grate is independent of the other, and has an up-and-down movement, so when operated by means of the lever, clinkers are broken and fall down into the ash pit. The castings used in them are heavy and made of good material, and they are carefully fitted and can be easily placed under any boiler. Its makers claim that it is the best constructed, most durable and eco-

bars, the bottom of the fire is cleaned equally over the entire grate surface, both easily and quickly, without waste of fuel. Owing to the taper shape construction of the grate bars being $\frac{3}{4}$ -inch at the top surface, and tapering to 3-16 inch at the bottom, thereby making a funnel shape air space between the bars, the funnel shape passage allows the air to enter under the bars freely, passing out quickly at the top surface, thereby causing a forced draft within the bars. It is the best draft grate bar in the world. It has the longest life of any grate bar now in the market, it will outlast from two to four sets of common grate bars. It is a labor and fuel saver. It increases the steaming capacity of the boiler. It will pay for itself once a year. It has no weak points in its construction."

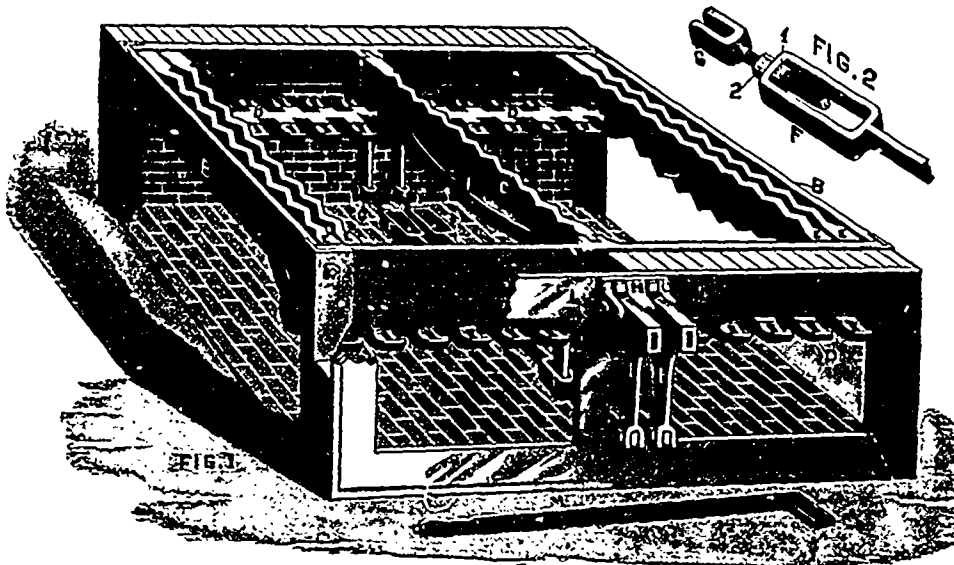


nomical grate on the market; that it will outlast three to six sets of common grates, and will save from ten to twenty per cent. of fuel. You can use screenings or the poorest coal with them, for no clinker can form. To keep fire under boiler clean and in good shape, it is not necessary to open the fire doors, therefore the bottom of the boiler is not chilled by the cold draft striking it, causing loss of steam and damage to boiler.

CANADIAN ELECTRICAL ASSOCIATION.

The sixth annual convention of the above Association was opened in Council Chamber of the Board of Trade Building, Toronto, June 17th, 1896. A. B. Smith, the president, presided.

A large number of members were present representing electrical interests and ideas from all over Canada.



SECTIONAL VIEW.

To set up this grate observe that *A A* are the two end frames, *B B* are the two side frames that bolt on to the end frame after the side frames are in place. *C* and *D*, castings, are to be next put in place. Next put in place two bars on each side marked *E E*. Level the bars *E E* at both ends. *F F* bolts on the front rocker. *G G*, the double nut connection, is next made. When the outside bars are perfectly level the double nut connection *G G* must be made tight. Next place the bracket "*H*" on boiler front. Then castings *I I* are connected to bracket "*H*" with lock pin *J*. Then attach connecting rods *K* to castings *I I*. Place balance of bars in position and key them on. The grate is now ready for use.

The Gurney Foundry Co., Ltd., Toronto, which manufacture this grate, give these reasons for the success with which it is meeting:

"It presents a smooth level surface while at rest, which is the life of any grate. Owing to the corrugated form of the grate bar the air is delivered equally over every square inch of the grate surface, thereby causing the most perfect combustion of any grate bar made. Owing to the perpendicular shaking movement of the grate

PRESIDENT'S ADDRESS.

After touching on a number of interesting points, the president said:

"As but a comparatively short time has elapsed since our last meeting, there is not much of actual achievement to chronicle, but there have been developments in the electrical field that indicate the possibilities of a revolution in our method of producing light by electricity. Many minds have for some time past been occupied with explorations in this promising direction. The production of light without heat has a fascination for the inventor that will probably lead to tangible results in the very near future. The ordinary developments of the science as exemplified in modern systems of power transmission, and electrical construction generally, have advanced towards perfection in as great a degree as in former years, but the field for the enterprising inventor, so far from being exhausted, appears to be growing broader and ever broader with unlimited possibilities.

"Notwithstanding the commercial depression, electrical industries in Canada may be said to be in a flourishing condition. The larger electrical manufactories are in full operation, and report a