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CONTENTS OF THIS NUMBER :

PAGE	PAGE
Acetylene for Cooking..... 323	Hanger, Brantford Adjustable Drop with Patent Roller Bearings..... 323
Bearings, Roller and Ball .. 320	Industrial Notes .. 327
Boller Compounds, The Use of .. 317	Motors direct connected to Machine Tools, Sl w Speed .. 321
Canadian Society of Civil Engineers 323	Mining News..... 336
Canadian Asbestos Co .. 323	Marine News .. 335
Canadian Mining Institute .. 325	Personal .. 335
Calcium Carbide at Chicoutimi .. 330	Railway Matters .. 333
Electric Flashes..... 319	Sewage Disposal Works, Brockton, Mass. .. 324
Engine, The M'Ewen Automatic .. 330	South Africa, Its People and Trade 324
Engineering and Maintenance of Way Association .. 330	Speed Indicators .. 321
Gas Works, The Boston .. 313	
Grinder, A new Pulp .. 330	

THE BOSTON GAS WORKS.

BY CHAS. BAILLAIRGE, C.E., QUEBEC.

It may be interesting to the general public to say that during the late visit of the Canadian engineers to Boston on invitation of the engineers of that city, we visited the gas works of the New England Gas and Coke Co., which are so far ahead of anything else of the kind in any other city, both as to extent and novelty of arrangement, as to be well worthy of special mention.

I shall merely deal here with the economic features of the labor-saving appliances introduced to reduce the cost of production to 30 cents the 1,000 cubic ft. The coal used is of course of the bituminous or gas-producing kind. It is brought from Cape Breton, and costs the company but \$2.63, delivered alongside the wharf at Boston. It consists solely of what is called slack or screenings of every degree of fineness up to and not exceeding an inch or less in size. A clam shell dipper from an elevated staging dips down into the hold of the vessel, scoops up a chaldron or more of the material, raises it to a height whence it is delivered from the clam shell into a trolley car. This car ascends along an inclined trolley way to a further height, which brings the coal immediately over the nest of retorts or furnaces into which it is to be delivered for caking or baking.

The retorts or furnaces are in nests of 50, and there are eight such nests or 400 ovens in all with a travelling feeder to each gang or batch of furnaces. Some idea may

be had of the comparative size and capacity of the plant when it is known that while ordinary gas plants, like ours in Quebec or other Canadian and American cities, as well as those to be found elsewhere about the world, are but a few feet in length (6 to 10 feet), a couple of feet in width and as many in height, holding as they do a few barrow loads of coal; the Boston retorts are 30 feet long, 8 to 10 feet high, and 3 feet wide. Each of the eight nests is therefore, including the separating walls between them, some 200 feet in length, and on each side of this hive of furnaces runs an elevated rail along which the traveler passes, stopping on its way opposite the retort to be loaded. Its gates, three in number, form as many bin-like pockets in the wrought iron feeder, and after the corresponding hatchways to the oven have been removed, are simultaneously opened, delivering the coal or slack, as grain from an elevator, into the retort which has just been emptied of the residual coke of a previous charge and is ready again and red hot to receive the next supply; and when that has been baked for 28 hours and all the gas expelled, repeat the process day and night without cessation the year round.

These nests of retorts are mounted high or as if on stilts to allow of tunnels running longitudinally beneath them with parallel lines of piping, two to three feet in diameter with corresponding conduits above the retorts, the latter to receive the two kinds or qualities of gas manufactured; the so-called poor brand for culinary and heating purposes to be sold at 50 to 60 cents the thousand feet, and the richer sort for illuminating purposes at say a dollar or less the thousand feet.

Both of these gases have to be purified or cleared of their tar, sulphate of ammonia and other impurities, for which purpose they pass through the lower of the tubes thus mentioned on their way to large-sized buildings, where the gases are received in scores of large and tall iron cylinders and cooled in contact with cold water jets and coils which cause the residuals to condense, distil and run away into receptacles for the purpose, the one vessel or several of them delivering always into another or others at a lower level, and so carrying out the principle of labor-saving manipulation, by raising the coals on their delivery from the vessel to such a height that all other operations may be automatic and performed by gravity alone except where electric or steam power is made to intervene to lift the slack to its destination and work the travelers where the motion is horizontal. I have already said that the furnaces are raised above ground level, and they are so raised or built at a height sufficient to allow of their delivering their coke (which is what is left of the coal after the gas has been expelled therefrom by roasting or heating in air-tight receptacles), at a height still sufficient for final delivery into the railway cars for commercial purposes.

The operation, which is the most novel, striking,