

MUNICIPAL ENGINEERS, CONTRACTORS, AND MATERIALS.

extraordinary exigencies for the safety of the state of the welfare of the inhabitants. If there be any advantage to the inhabitants in buying and selling coal and wood for fuel at the risk of the community on a large scale, and on what has been called the co-operative plan, we are of the opinion that the constitution does not contemplate this as one of the ends for which the government was established or as a public service for which cities and towns may be authorized to tax their inhabitants. We, therefore, answer the question in the negative."

TESTING BRIDGES.

Speaking of the value of test loads for iron and steel bridges the *Centralblatt der Bauverwaltung* points out that, in general, far too much importance is attached to this method, and that, accordingly, erroneous deductions as to the safety of bridges tested by applying loads and noting the resulting deflections are abundant. The case is cited of an iron bridge in which a recent careful inspection revealed alarming local corrosion. Still a test load, applied only a few days before, had produced a deflection well within permissible limits, and the railway company owning a bridge was therefore satisfied of its safe condition. The writer of the article maintains that the application of test loads to bridges has never yet led to the detection of defects which could not have been found by circulation and inspection. Satisfactory behavior under a test load, it is held, is no guarantee whatever of safety, and may, in fact, be conducive of disaster by engendering a feeling of security which is only imaginary.

INDIA-RUBBER PAVEMENT.

A German engineer has paved a bridge with india rubber, and the result has been so satisfactory that it is to be applied on a larger scale. It is found to be more durable than asphalt, and not slippery. "A section of roadway," says the *Railway Review*, "under the gate leading to the departure platform of the St. Pancras terminus, London, has for some years past been paved with india rubber, and many people must have been pleasantly surprised at the deadening of sound when passing over it on wheels, and at the grateful elasticity to the tread when traversing it on foot."

Books of hundreds of pages are written on road making, yet the principles of successful road construction are very simple. It is water that injures roads more than any other element. The water freezes and expands, and when the thaw comes all is loose. Any one may have observed ruts to come in roads more readily after a thaw than at any other time. If attention were given to draining water from roadbeds, macadamized roads would last double the length of time they generally do.—*Mechan's Monthly*.

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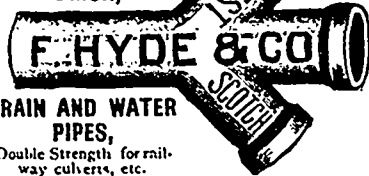
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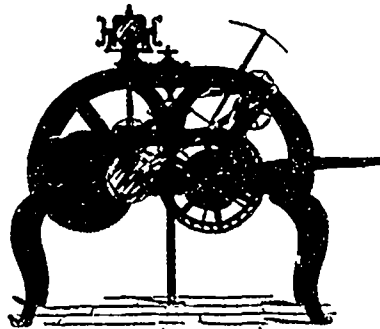
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