

1897. Whilst, no doubt, the system herein described may appear elaborate and extensive in detail, and perhaps seem to entail expenditure for labor beyond the reach or desire of managers of small stations, I see no reason why the principle involved may not be used in any station at a slight expense. For while perhaps not requiring to employ all the sub-divisions indicated upon the blanks or forms shown, yet many of them can be utilized and put into practice with such modifications as the local conditions demand without imposing upon the manager or employees any labor or expense beyond that which can be afforded, and if I have succeeded in conveying ideas and information that may serve towards the adoption of a general system of Accounting for Central Station practice as suggested by the authorities referred to in the beginning of my paper, I will feel myself amply compensated.

### RAILWAY ENGINEERING.

The Engineering News, New York, says recently: "We here have presented in book form a series of articles on railway construction originally published in The Canadian Engineer. The author has had a long and varied practical experience in railway work; and while he quotes freely from the late A. M. Wellington's 'Theory of Location,' and from other standard works on this subject, his aim is to serve those who wish to acquire some general information on subjects heretofore separately treated. In the first chapter he deals with fundamental considerations and statistics, chiefly applicable to Canadian railways. Train, curve and grade resistance and their cost, and vertical and horizontal and transition curves are treated in the next two chapters. Under Surveys, we have, the organization and methods for making reconnaissance, preliminary and final surveys, and some of the methods of passing obstacles. 'Roadbed Construction' covers waterways of various types, with designs for such structures and approximate cost, and includes large bridge foundations and the methods for sinking them; wooden trestles are treated at full length as still desirable where wood is abundant and other material unavailable. Foundations on land and in water are separately treated; the various methods are described and the approximate cost is given in many cases. The laying out and measurement of work is illustrated by diagrams and text, and notes are included on the methods of payment and classification of materials, etc. The sixth chapter deals with Canadian railway law, under the Railway Act; and Part II. of the book is devoted to track details. The work, taken as a whole, condenses into a small compass much information that will be useful to young railway engineers."

### THE DART UNION COUPLING.

We call the attention of our readers to the advertisement that appears now for the first time in a Canadian journal, of the E. M. Dart Manufacturing Co., Providence, R.I. This company is engaged in the manufacture of several excellent steam appliances that have won their way to the front by merit. The most conspicuous is the Patent Union Coupling, which is claimed by all parties to be "the best." One of the illustrations in the advertisement shows the patented features, which will be readily understood by steam users. The connecting parts marked Dart Patent, April 1st, 1890, are made of bronze, the other parts are malleable iron. This company has supplied to the Brooks Locomotive Works, Dunkirk, N.Y., fifty thousand of these couplings in the past four years. These couplings are now being furnished to the largest industrial works, including locomotive builders, railroad companies, factories, breweries, ship builders, miners, steam fitters, gas companies, plumbers, and others, for use in connecting pipes, for the conveyance of steam, water, gas, oil, air, etc. The E. M. Dart Mfg. Co., in offering to the people of Canada this excellent device, can give assurances, born of experience, that the meritorious features have been subject to the "crucial test of time," and no risk is taken in buying the goods. We learn that the company contemplates having these goods on sale with the prominent jobbing houses of Canada soon. All enquiries for prices and discounts will be promptly answered by addressing E. M. Dart Mfg. Co., Providence, R.I., U.S.A.

### LEAKING VATS.

Editor CANADIAN ENGINEER:

Will you kindly tell me what to apply to the inside of cider tanks to prevent the cider soaking through the wood. I have lost hundreds of gallons in this way, and can find no remedy.

[The only satisfactory method, so far as we know, is to apply a special enamel to the inside of the tanks, such as brewers use. We have sent you by mail the name of a dealer in brewers' supplies, whom we can recommend. Ed.]

### SMOKE CONSUMPTION.

The Montreal Board of Trade has for some time used anthracite screenings as fuel in making steam for light and power. A forced draft is necessary to do this, which causes a considerable quantity of the ash, small particles of slate, and some unconsumed coal dust to escape at the top of the chimney in the shape of fine hard grit. This proved troublesome, not only to the Board of Trade and their tenants, but also to others in the neighborhood, and it was decided to at once put a stop to it. This has been accomplished most effectually in a novel manner, the sparks or grit as they leave the fire are caught and separated from the hot gases before they pass through the tubes of the boiler, thus preventing the accumulation of dust or ashes in the tubes and maintaining the boiler in its most efficient condition at all times. The sparks or grit, after being separated from the hot gases, are then immersed in water and conveyed outside the building by means of a special hydraulic conveyor, and are then separated from the water and are ready to be carted away. The water is then returned to carry out more ashes and grit. The system was thoroughly tested on one boiler for six months before being applied to the remainder of the plant, since which time it has been inspected by several prominent engineers, who all say that it is the best device for the purpose that could be thought of. John J. York, superintendent and engineer of the building, is the inventor of the system, and he is now preparing to take out patents on it.

### CORRECTION.

In the issue of The Canadian Engineer for June, by a typographical error in John S. Fielding's letter on "Dam Building," the formula "31.25h" was made to appear as "21.25h."

### THE V. & B. PIPE WRENCH.

Vaughan's improved positive grip pipe wrench combines lightness and strength, as well as durability, and its construction is the most simple, and the least complicated of any practical pipe wrench on the market. As will be seen from the above cut this wrench consists of only two pieces, which are drop-forged from bar cast steel; there is no malleable nor wrought iron used in its construction. It is solid cast steel from end to end; it has no threads to rust and wear out, nor springs to break; it cannot lock nor wedge on the pipe, and will release its grip instantly when the pressure on the handle is removed. The teeth are in a line tangent to the circumference of the pipe,



which combined with the oscillating angular toothed jaw, absolutely prevents crushing or slipping on the pipe. The jaws are oil tempered and the teeth can be sharpened with a file when dull. This wrench is especially adapted for use in limited spaces, such as narrow ditches, pump work in wells, pipe work for irrigation, wind mill pipe work, and for general use around agricultural machines. Every mechanic should have one. For screwing in stud bolts in steam pumps and engines. The makers claim for the V. & B. pipe wrench, simplicity of construction, combined with lightness and strength, and its positive rigidity when under a strain, and wherever it can be used