

Chloride Accumulator.

The illustration on page 234 is of the chloride accumulator manufactured by the Electric Storage Battery Co., Philadelphia, Penn. The value and efficiency of it may be better understood from the following letter, which explains itself:—

GRAND TRUNK RAILWAY COMPANY OF CANADA.

Assistant Mechanical Superintendent's Office, Locomotive Works.

MONTREAL, Feb. 23rd, 1894.

Charles R. Hosmer, Esq., President and General Manager, Canadian Pacific Railway Co.'s Telegraph, 4 Hospital St., City.

MY DEAR SIR,—In accordance with your request I have had the small Chloride Accumulator Cell, which you forwarded to me, thoroughly tested by my friend, Prof. H. L. Callendar, of the Physics Department, McGill College, with very gratifying results.

Concerning the same he reports as follows:

Feb. 22nd, 1894.

MY DEAR WANKLYN,—I have tested the small Chloride Accumulator Type E. 5, with results which confirm very nearly the makers' claims with regard to capacity and efficiency. The cell was twice charged and discharged at a 5 ampere rate, the current and voltage being recorded by Weston instruments which have been tested and calibrated in our laboratory. The charging was continued on the first occasion until the cell when tested for a moment with a current of 10 amperes, showed an E. M. F. of 2.70 volts. On the second occasion up to 2.50 volts. The discharge was continued on each occasion until the volts fell to 1.70. Taking both records together the ampere efficiency of the cell comes out 96.1%. The Watt-efficiency 84.0%. The second charge and discharge show a higher efficiency, as might naturally be expected, than the first. The curves approximate very closely throughout with the curves given in the pamphlet. The useful capacity of the cell is now a little over 100 ampere hours, but it can be made to hold more by prolonged charging. At present it is impossible to make any statement with regard to the durability of the cell, but so far as can be judged from its construction this should be very good. The effective resistance of the cell at a 5 ampere current is approximately 1/200th of an ohm. The cell will probably improve a little with further work, so that I think we may conclude that it fully bears out the makers' claims so far as we have been able to test it.

Yours very truly, (signed) HUGH L. CALLENDAR.

Attached you will find Blue Print showing the curves traced during the two chargings and dischargings, which are very satisfactory.

Yours very truly, F. L. WANKLYN.

Coal Consumption in Big Cities.

Those who are interested in the saving of coal wastes and the suppression of particularly smoky factory and other chimneys will find some rather suggestive figures in the report on the mineral industries of the United States, showing what enormous quantities of coal are annually consumed in the different cities of the country.

New York, for example, in 1889 received for consumption a little more than 3,300,000 tons of anthracite, and over 1,850,000 tons of bituminous coal; for Philadelphia the respective amounts for the same year were about 3,190,000 and 920,000 tons; for Chicago, 1,450,000 and 3,220,000 tons; for Boston, 1,240,000 and 525,000, and for Brooklyn, 1,800,000 and 200,000 tons.

But even the smaller cities burn up coal at an impressive rate, making the total annual consumption mount up into a quantity so vast that even the smallest percentage of saving that could be effected would represent something remarkably substantial. Special forms of furnace grates, smoke consumers, mechanical stokers and damper regulators galore have been offered for years with claims of reducing coal consumption by varying fractions. Some of these contrivances are doing good work and are reaping the rewards of their merits in the shape of profitable sales, but they still leave a wide field in which ingenuity and invention may be exercised with every hope of handsome pecuniary returns.

Henderson's Machine for Sharpening Clippers.

The accompanying illustration is of Henderson's newly invented machine for sharpening barber and horse clippers. With it clippers may be concaved and sharpened with rapidity and accuracy; and it consists essentially of an adjustable plate to which the clipper is fastened, and an emery wheel set so that the edge of its periphery shall act upon the surface of the clipper, all parts of the machine being adjustable. In setting forth his claim, upon which a patent was granted, the inventor states:—

In the drawing, A represents a plate, on the surface of which I cement the clipper B, which I may wish to sharpen. The plate A, is bolted to the post C, as indicated, so that it may be readily removed for the purpose of fixing to or taking off the clipper B. The post C, is vertically adjustable and may also be revolved by the worm-spindle D, in order that a proper portion of its surface may be brought into proper line with the emery wheel E. This emery wheel is caused to revolve and is carried in a suitable-bearing box F, which is carried in the head G, and is vertically adjustable therein, being held at any desired position by means of the thumb-screw H, as indicated in the

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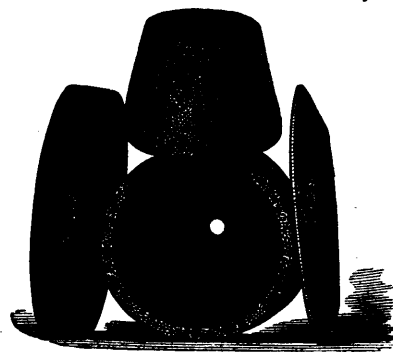
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