

BRICK MAKING BY STREAM.

"THE CANADA MACHINE"—PATENTED, 1868.

Since the days when the children of Israel made bricks in Egypt, under Pharaoh's taskmasters, brick-making has been one of the settled industries of mankind; and proficiency in the machinery and modes employed, for this purpose, have exhibited one test of civilization. There are, at present, many patents for brick making machines in the United States; some of which are successful, and some, like Ericsson's monitors and caloric engines, ingenious and expensive failures. On the continent of Europe also, there have been some ingenious inventions of late years, one kind of which, exhibited in Paris and recently introduced into this country, we described in these columns as being successfully working at the Glen.

We have since had our attention drawn to a Montreal patent of a self-acting machine, perfected by Messrs. Bulmer and Sheppard, and this spring put into operation on a large scale for the first time. It is called the "Canada Brick Machine, patented, 1868." The patent consists of an ingenious application of machinery, propelled by steam or horse-power, to a common method of moulding bricks, six at one time. The clay is wheeled to the top of the mill, dumped in, mixed, and forced down into the moulds by means of screw knives. When it finds its way down into a square box, in which the moulds are set, it is forced and fitted into them by a heavy pressure obtained by an eccentric motion from a steam-driven shaft. One set of moulds is put in as the other is forced out; the moulded bricks are moved forward for removal as fast as finished; and as rapidly as a man can slide in the empty moulds, and turn out filled ones on a constantly revolving board or turn table. When we saw these machines at work, we were told that each was making 12,000 bricks a day; but we were assured that these machines will mould 15,000 bricks per day with the attendance of one man to put in the clay, one man or smart boy to attend to the moulds, three strong boys to wheel off the bricks and hack them up, and a small boy to sand the pullets. We were told, however, that to make "slop bricks" less attendance would be required, and much greater speed obtained.

The bricks as they come out of the moulds from this machine are smooth and sharp on the edges and much more regularly formed and perfect than can be moulded by hand, from the clay being worked much stiffer, and forced to the exact shape of the mould by great pressure. It is claimed that this pressure gives more solidity and strength to the bricks, and that they retain their best character and dry much quicker than those moulded in the ordinary way. The pressure can be regulated momentarily, without interfering with the work going on, so as to admit of the clay being moulded either soft or stiff. All that is required is to lengthen the connecting rod, which can be done from the one-eighth of an inch to six inches. To overcome the difficulties in the way of obtaining the exact requisite pressure on clay exposed to all kinds of weather, has been the chief study of inventors of self-acting brick machines, and great stress is, we are informed, laid upon the perfection, which is attained in this respect.

The machine itself is certainly very simple and inexpensive. A cog wheel connected with the driving shaft turns the clay mill, while another moves an eccentric action, which presses the clay into the moulds, and then forces the moulded bricks from under the lever to the front of the mill for the attendant to lift away. It is provided with an ingenious arrangement, by means of a spring, by which it will unship, instead of breaking in case a stone should happen to get into the moulds. After the obstruction is removed the moulding process goes on as before.

This machine is said to be admirably adapted for pressing peat and we understand it is to be used for that purpose.

Having said this much of the "Canada" machine, it may not be uninteresting to give a brief description of the well ordered brick yard in which eleven of them are in operation. This yard, if we are not misinformed, is by far the largest in the Dominion of Canada, and the second largest on the continent. It is situated at the head of Fullum street, about half a mile from Hochelaga Bay, thus being favourably placed for receiving the very large supplies of fuel required. The premises altogether are 30 acres in extent. And the yard has been for some years effectively worked by Messrs. Bulmer and Sheppard, who have made from nine to ten millions of bricks a year, but yet have been unable to supply the constantly increasing demand called for by the rapid progress of the city.

The clay is dug out of the bank in the winter and left to pulverize by the action of frost. In this state it is arranged in a long bank at the head of the drying yard. The mills are arranged along this bank, at regular distances apart to prevent crowding, and driven by a line of pretty heavy iron shafting 750 feet long, in the centre of which is placed a steam engine sufficiently powerful to turn the whole.

The drying ground gradually slopes down from the mills to the kilns, which are built of large size, the arrangement being such that the wheeling of either the green or the dried bricks involves the minimum of labour. They are left in the kilns, when burnt, until delivered, and the space and facilities for delivering are so ample, that the average delivery during the building season is from sixty to one hundred thousand *per diem* without crowding or any waste of time, with only two men to assist the carters in the delivery. In burning the kilns vary in size from 200,000 to 1,000,000 according to circumstances. The larger size is preferred owing to the economy arising from the intense heat of so large a mass of almost molten clay. The whole process of burning a kiln occupies, on an average, five days. The fire is first slow until the bricks are fully prepared for it, when they are forced up to a white heat at which they are kept, until sufficiently burnt.

It is calculated that about 12,000,000 bricks will be made and burnt in this yard this summer with the facilities afforded by the "Canada" machine. The wood used for burning is principally soft—costing, we are told, from \$2 to \$3 per cord at the wharf—and that one cord burns on an average 3,000 bricks. Between 50 and 60 horses are employed in the business. Thirty of these are owned by the firm, and are provided with good stabling, and are in good condition. The number of hands employed is about 150. We are told that as many as 15,000,000 of bricks might be made in one season, without any additional machinery, with an enlargement of the drying space; and that the "Canada" machine more than answers the expectations which were formed of it.

To those taking an interest in mechanical operations, this establishment is well worth a visit. We are sure that they will be afforded every opportunity for inspecting it by Mr. Sheppard, one of the partners, who may, we believe, generally be found on the works.

RECIPROcity.—The New York Commercial Advertiser, in commenting on reciprocity with Canada, says:—

"A genuine reciprocity treaty with Canada would be a good thing, but if it is restricted to the natural products of the soil, we take everything from Canada and send her nothing in return. She is agricultural, we manufacture. Why not exchange these products also?"

The Buffalo Courier, referring to this, humorously and somewhat poetically says:—

"There was a time, a blessed time, when we were fresh and young, when praises of our government through every land were sung. But now our disadvantages and taxes are so great, that for a time we think we must submit to the hard fate of losing trade with Canada. If it were brought about, our men and money would go there, and drain our workshops (and factories) out."

SOUTHERN AND WESTERN CONVENTION AND GRAIN MOVEMENT.

THE convention just held in New Orleans is fraught with important results if the parties interested are in earnest and intend to carry through the work they have thus undertaken. The natural alliance of the South and West as parts of the same geographical district, the great Mississippi Valley, is at once apparent; and if among the many causes which led to the downfall of the Southern Confederacy one was more specially influential than another, it was probably the interruption of the Mississippi commerce and the embargo laid by Mr. Davis and his Cabinet on the Western trade and traffic. From this lesson of history men have gathered wisdom, and an alliance, offensive and defensive, of the South and West against the East and Northeast is in process of formation. The material welfare of the parties to the treaty is one and the same, and assuming that the parties to the compact are in earnest, it will require all our energy and no little public spirit and organization to counteract the movement and to maintain our present commercial pre-eminence.

The rapid growth and development of the West, and of the great cities of Chicago, Cincinnati and Pittsburg, have stimulated Eastern enterprise, and the result has been a grand system of railway and canal communication, by which the products of the West have been transferred to the Atlantic seaboard, thereby fostering our carrying trade and helping to build up our Atlantic cities to their present wealth and magnificence. Meanwhile the Southern staple of cotton found its way to the sea through New Orleans, Mobile and Savannah, and, as points of transshipment, these cities became in their turn lesser examples of theory already illustrated by Great Britain and Holland, that the carriers of the world belong the profits of commerce. The war put an end to this era of Southern prosperity, but the return of peace, the altered relations of agriculture and of labor in the South, the jealousy of St. Louis, stimulated into activity by the unparalleled growth and prosperity of Chicago, the opening of the Pacific Railroad, with the vast district of inexhaustible natural wealth and fertility thus brought into the brotherhood of nations, have revived the dreams of Southern supremacy, and the first outcrop of this sentiment is the convention which has passed a set of resolutions thanking the national government for the little done, and urging it to do a great deal more, especially in the dredging out of the bars at the mouth of the Mississippi river. But the main question, the great "grain movement" alliance, seems to have received but little notice. The "grain movement" is in part the subject of a separate and independent organization, but the noteworthy fact in the Southern Convention, was the presence and action of Western delegates, urging in concert with Southerners the improved way to the ocean through the Mississippi.

From her competition with Chicago, St. Louis soon after the war, made overtures to Boston for increased facilities in railroad communication, which, however had small results; though we may remark, parenthetically, the activity displayed by the Boston merchants in their intercourse with New Orleans, to which they run a line of steamers, and the lively favour shown in the New Orleans market for Yankee goods which fully hold their own against New York merchandise although the "liberal" political sentiment of New York city might be supposed to predispose Southerners towards New York dealers. This negotiation with Boston led, as we say, to no results, the lake and canal water to Chicago, the network of railroads converging at that point, and the wealth and extraordinary vigor of her commercial magnates defying for the present all opponents. Now, however, that the South is recovering herself, that one good has been accomplished, with fair prospects of another, and that political agitation has somewhat subsided, the immense natural advantages of the Mississippi as a means of transport for produce and bulky merchandise between the seaboard and the trans-Mississippi States, and even for those regions on this side which possess ready access to the river, is again present to the commercial mind.

The tonnage of the Mississippi River before the war used to be reckoned by millions. As many as 800 vessels at the New Orleans levee, of all classes and sizes, river and ocean, were no uncommon spectacle in the shipping season. This enormous traffic with its attendant upulence steadily declined from the day that Louisiana joined the Confederacy and it has never yet revived. The levees are bare of goods, the magnificent river highway deserted and the Crescent City is no more the resort of merchants. The comparatively few steamers are owned by Western men, who, with characteristic pluck, have continued to run them in spite of many discouragements, low freights, light traffic, ruinously destructive fires, and loss and disappointment in every form. But while New Orleans and the South seemed beaten down by continuous calamity, the Western men held on, and it is to their irrepressible vigor that this grain movement is now due, and that the good time so long coming shall, when it does come, bear a full reward.

The old river trade of the Mississippi used to be done by flatboats, one of which may now and then be seen on the broad bosom of the river, drifting slowly down from the sea—a memorial of the days before railroads, steamboats or telegraphs, when time was counted by weeks and months, and not as now by minutes and hours. The steamboat put an end to these Noachian wayfarers, but the steamboat, by a kind of poetic justice, has now to contend with the canal barge. "The Yanks," during their occupation of New Orleans introduced the steam tug with its fleet of heavy, deep-laden barges; and coal, grain, lumber, ice, and other Western produce are now carried down in bulk by these heavy craft, and thus the steamboat freights have been depressed far below the paying point for those elegant and costly vessels.

Already an elevator has been constructed in New Orleans, and grain has been delivered in the port of