

first great saving is effected, as the machines accept the crude clay and manufacture it to advantage in so stiff a state as not to contain more than one-eighth of the above amount of water to be evaporated, and yet all of its cohesive qualities are retained.

In regard to the mechanical construction of these machines for moist clay, we must state that the heavy developing pressures take place while the mold table is at rest, thus requiring but a nominal amount of power to operate them, and avoiding strain, wear and tear, and breakage, as well as the great propelling power which is the general concomitant of other machines. When the bricks made of such clay and molded to a great and equal density, are baked, the fusion is more complete, the bond between the clay particles more perfect, the bricks less porous, therefore they absorb less moisture, and are much stronger.

Comparative hydraulic pressure tests have been made between the bricks made by the Gregg machine and hand-made bricks; the result was that while hand-made front bricks were crushed at a pressure of 42,000 pounds, the machine-made front bricks stood 60,000 pounds; when burned hard, the hand-made bricks were crushed at 49,000 pounds, while the machine-made bricks stood 55,000 pounds. When half and quarter bricks were tested the difference was still larger, as the hand-made bricks showed a falling off in strength nearly proportional to their size. This was by no means the case with the machine-made bricks, of which half and even a fourth part were almost as strong as the whole brick. These experiments were verified by direction of the supervising architect of the United States at the Treasury Department, and the result was an order that the Gregg bricks should be used for government work.

This fact, in connection with the highest premiums at all the exhibitions in Europe and in the United States, makes it needless to give here any of the testimonials which are published in the catalogue of the manufacturers, from which we will only extract the result of a tabular calculation of the comparative expense of hand-made brick and that of bricks made by the No. 1 Gregg triple pressure brick machine here represented; it is that the wages of ten molders, ten bearers, ten wheelers, one temperer, and one pitman amount to \$252 per week, producing 150,000 bricks; while the expense of one engineer and machine man, one feeder of machine, two off-bearers, one wheeler, expense of coal, oil, and waste amounts at most to \$52, also producing 150,000 bricks. Thus we have here a saving of \$200 per week, which soon pays for the cost of the machine, while the profit on the bricks is largely increased, the hand-made bricks costing \$1.68 per thousand, made ready for burning, and the machine-made bricks 30 cents.

The machine is made by Gregg Brick Co., 402 Walnut street, Philadelphia, Pa., manufacturers and builders.

THE GENESIS OF THE MOSQUITO.

To the Editor of the Scientific American:

For several years past I have noticed in warm weather, that my wooden cistern, which is above ground, has been infested with peculiar looking little red worms. I have heard many others like myself complain of these worms, and I had taken it for granted that they were a species of earth worm. However, last summer I procured a glass jar and sprinkled the bottom of it with a very small quantity of sand and clay. I then half filled the jar with clear fresh water, and, after putting a dozen of these worms in the jar, I tied a piece of cloth over the mouth, and placed it in a light, airy place.

The worms were from half to three fourths of an inch in length, of a bright red color, and had rather a jointed appearance about the body. They would crawl on the bottom of the jar, swim through the water by a rapid bending of the body backward and forward, and occasionally come up to the surface of the water and float.

Within twenty-four hours after placing them in the jar, I noticed that they had all gone down to the bottom of the vessel, and had enveloped themselves separately in a kind of temporary shell made of earth and sand.

In a few days after this I saw one of these worms crawl out of his temporary house at the bottom of the jar, and swim to the surface of the water. Here, after twisting about for a few seconds, he ruptured a thin membrane that enveloped his body, and came out a full fledged mosquito ready for business. I noticed many of the other worms going through the same performance within a short while afterward. Some of the mosquitoes were much larger than others, but, as I have already stated, some of the worms were also larger than others.

F. W. COLEMAN, M.D.

Rodney, Miss., April, 1879.

THE FATE OF A HERD OF BUFFALOES.

An army officer who recently arrived in Chicago from the Yellowstone Valley, tells a story of what happened to a herd of buffaloes as they were migrating southward. The herd numbered 2,500 head, and had been driven out of the Milk River country by the Indian hunters belonging to Sitting Bull's band. When they reached the river they ventured upon the ice with their customary confidence, coming upon it with a solid front, and beginning the crossing with closed ranks. The stream at this point was very deep. When the front file, which was stretched out a quarter of a mile in length, had nearly gained the opposite shore, the ice suddenly gave way under them. Some trappers who were eye-witnesses of the scene said it seemed as if a trench had been opened in the ice the whole length of the column. Some four or five hundred animals tumbled into the opening all in a heap. Others fell in on top of them and sank out of sight in a twinkling. By this time the rotten ice was breaking under the still advancing herd. The trappers say that in less than a minute the whole body of buffaloes had been precipitated into the river. They were wedged in so thickly that they could do nothing but struggle for a second and then disappear beneath the cakes of ice of the swift current. Not a beast in all that mighty herd tried to escape, but in a solid phalanx they marched to their fatal bath in the "Big Muddy." In a minute from the time the first ice broke not a buffalo's head or tail was to be seen.

Possibly occurrences of this sort, in ancient tertiary times, helped to form the remarkable deposits of bones found in the old lake beds of the great West and elsewhere. In these deposits the earth is literally crowded with the bones, sometimes chiefly of one type, sometimes comprising many distinct species. In the latter case the victims were probably swept away by sudden floods, their remains mingling confusedly in quiet basins.

NEW PATENT-OFFICE RULE.

The Commissioner of Patents has issued a rule for correcting errors in letters patent. Its provisions are as follows: Where a mistake, incurred through the fault of the office, is clearly disclosed by the records or files of the office, a certificate, showing the fact and nature of such mistake, signed by the Secretary of the Interior, countersigned by the Commissioner of Patents, and sealed with the seal of the Patent Office, will, at the request of the patentee or his assignee, be indorsed, without charge, upon the letters patent and recorded in the records of patents.

Where a mistake, incurred through the fault of the office, constitutes a sufficient legal ground for a reissue, such reissue will be made, for the correction of such mistake only, without charge of office fees, at the request of the patentee.

Mistakes not incurred through the fault of the office, and not affording legal ground for reissues, will not be corrected after the delivery of the letters patent to the patentee or his agent. No changes or corrections will be made in letters patent after the delivery thereof to the patentee or his agent, except as above provided.

RAILWAY PARCEL EXPRESS STAMPS.—A circular has been issued by Mr. A. Atkinson, which states that twenty-five railway companies of England, Scotland, and Wales have resolved that from and after the 1st of January next, they will issue railway stamps of the value of 4d. and 8d., which shall carry parcels of 2 lbs. and 4 lbs. respectively throughout their whole systems, and that they have agreed to accept parcels of these weights and rates throughout the whole of their systems, and to grant an insurance up to 20s. at these rates, thus placing all the stations on these twenty-five companies at the command of the public for the receipt and delivery of parcels not exceeding 4 lbs. in weight.

A VARNISH FOR REPLACING TURPENTINE AND LINSSEED OIL PAINTS.—Fr. Thies, of Bissendorf, prepares a varnish consisting of 100 parts of colophonium, 20 parts of crystallized carbonate of sodium, and 50 parts of water, by heating these substances together and mixing them with a solution of 24 parts of strong liquor of ammonia in 250 parts of water. With the mass thus obtained, the pigments are levigated without the addition of linsseed oil or turpentine; the paint dries readily without the aid of a drier, and looks very well especially when varnished. The paint keeps well even under water and becomes very hard. The cost is said to amount to about one-third of that of ordinary oil paints.—*Deutsche Gewerbe Zeitung.*