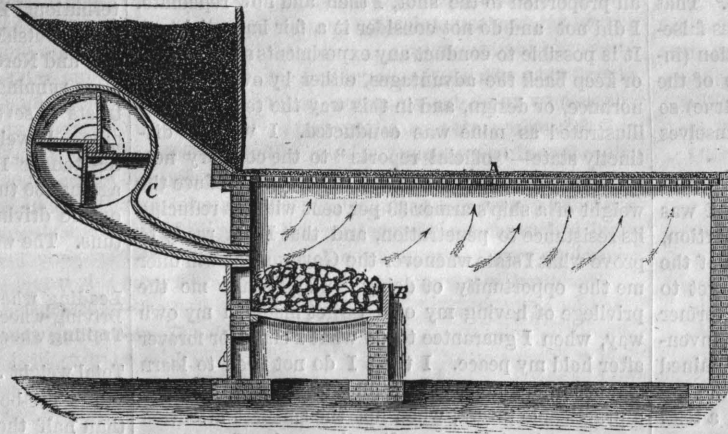


Improved Hot Blast Grain Dryer.

This engraving represents another method of drying grain, differing in some respects from the plans of the inventor, Mr. S. Marsh, before published on page 49, present volume of the SCIENTIFIC AMERICAN.

This arrangement consists in spreading grain in thin layers on a horizontal perforated metallic table, A, said table being placed over a furnace, B, the hot air from which is driven upward through the grain by the blower, C. This furnace may be dispensed with where a steam engine is employed, as the heated air from the boiler furnace may be caused to pass directly under the table and so impart its caloric to the damp grain. The hopper, D, contains a supply of grain, which, as fast as that upon the table is removed falls down, and may be spread out to dry with but little trouble.

As an expeditious and simple method for effecting the object, this plan is certainly an excellent one, as the large heating surface derived from the great area of the table permits the moisture to be driven off rapidly. The invention was patented on Jan. 16, 1863, by Sylvester Marsh. For further information address the inventor at Box 3047, New York city.

**MARSH'S HOT BLAST GRAIN DRYER.**

strikes out the inventions themselves, but who, from want of tact and experience, cannot carry them into practical effect. The reward which poor Cort received for having done so much to develop the great resources of his country was—ruin. He was made answerable for the defalcations of Adam Jellicoe, the deputy-paymaster of seamen's wages, and father of his partner, and had to give up his works. After a hard struggle with want, he obtained a pension of £200 a year for the support of his destitute family of twelve children. "In the opinion of Mr. Fairbairn, of Manchester," says our author, "the inventions of Henry Cort have already added six hundred millions sterling to the wealth of the kingdom, while they have given employment to some six hundred thousand working people during three generations. And while the great ironmasters, by freely availing themselves of his inventions, have been adding estate to estate, the only estate secured by Henry Cort was the little domain of six feet by two, in which he is interred in Hampstead churchyard."

How Statues are Made.

A correspondent of the London *Reader* gives the following details regarding the production of statues: "The sculptor having designed a figure, first makes a sketch of it in clay a few inches only in height. When he has satisfied himself with the general attitude, a cast is taken of his sketch, and from it a model in clay is prepared of the full size he designs for his statue, whether half the natural height, or life-size or colossal. The process of building the clay, as it is called, upon the strong iron *armatura* or skeleton on which it stands on its pedestal, and the bending and fixing this *armatura* into the form of the limbs, constitute a work of vast labor of a purely manual sort, for whose performance all artists able to afford it employ the skilled workmen to be obtained in Rome. The rough clay, rudely assuming the shape of the intended statue, then passes into the sculptor's hands and undergoes his most elaborate manipulation, by which it is reduced (generally after the labor of several months) to the precise and perfectly-finished form he desires should hereafter appear in marble. This done, the *formatore* takes a cast of the whole, and the clay is destroyed. From this last plaster cast again in due time the marble is hewn by three successive workmen. The first gives it rough outline, the second brings it by rule and compass to close resemblance with the cast, and the third finishes it to perfection."

Formosa Camphor.

The manufacture of this article has for some years been monopolized by the Taotai (or Head Mandarin) of the island, and its sale farmed out to wealthy natives. In former years a good deal of the drug was clandestinely produced, and smuggled across to China, where it was largely bought up by foreign speculators and carried to Hong-Kong for shipment to Calcutta, at which place it finds the readiest market, being used

by the natives of Hindostan for lubricating the body and other domestic purposes. But now its monopoly is so closely watched that almost the entire trade in it falls to the lucky individual whose Chinese agents can secure the monopoly. This bad system has occasioned the price of the article in Hong-Kong to increase considerably in value, and to make the profits accruing to the fortunate monopolist almost fabulous.

The cost of the drug, I learn, amounts to only six dollars at its place of manufacture. The monopolist buys it from the Mandarin at sixteen dollars the pecul and sells it in Hong-Kong at twenty-eight dollars. The gigantic laurel (*laurus camphora*) that yields the camphor, covers the whole line of high mountains extending north and south throughout Formosa. But as the greater part of this range is in the hands of the aborigines, the Chinese are able to gain access only to those parts of the mountains contiguous to their own territories that are possessed by the more docile tribes. The trees, as they are required, are selected for the abundance of their sap, as many are too dry to repay the labor and trouble of the undertaking.

A present is then made to the chief of the tribe to gain permission to cut down the selected trees. The best part of the tree is secured for timber, and the refuse cut up into chips. The chips are boiled in iron pots, one inverted on another, and the sublimated vapor is the desired result. The camphor is then conveyed down in carts of rude construction, and stowed in large vats, with escape holes at the bottom, whence exudes an oil, known as camphor oil, used by Chinese practitioners for its medicinal properties in rheumatic diseases. Samples of this oil have been sent home, and it may eventually become a desideratum in Europe. From the vats the camphor is stowed in bags to contain about a pecul each, and is thus exported. The Chinese Government has empowered the Formosan authorities to claim on its account all the timber produced by the island for ship-building purposes; and it is on this plea that the Taotai appropriates the prescriptive right of dealing in camphor. About 6,000 peculs of the drug are annually produced in the neighborhood of Tamsuy.—Robert Swinhoe.

Granada Cotton.

We have received from E. Flint, M. D., of Granada, Nicaragua, one sample of the native cotton of that country, and two different kinds of cotton seeds, which he collected in the mining part of that State. The color of the cotton is a buff, and darker in the shade than the yellow variety of Nankin. It remains unaltered by washing and is used by the native Indians in manufacturing their common hand-made, coarse cloth. The fiber is coarse and short, but very strong, and it will make a durable quality of cloth. Dr. Flint states that the seeds are of the white variety of cotton, which is prized on account of the facility with which it parts with its seed, thus rendering it very easy to gin. Each head or boll of cotton contains from three to five kidney-shaped seeds, arranged almost like the grains on a short, thick ear of wheat, and it is called the kidney variety on account of the shape of the seeds. The buff-colored cotton will grow in a colder climate than the white variety.

A NEW ISLAND IN THE MEDITERRANEAN.—A new Mediterranean island has come to the surface, off Palermo. It is a volcanic phenomenon, and appeared for the first time a few years since, and was taken possession of by the Neapolitan Government and named Fernandia, but disappeared one fine day and sank to the bottom, and has just come up again to the great delight of the scientific world. An English vessel, with several members of the learned societies on board, has just anchored off Palermo to take observations, which cannot fail to be of great scientific interest.

In cargoes of ice, which have been shipped from Boston to the East Indies, have frequently been placed considerable quantities of apples, which have reached their destination in as good condition as when first shipped.

Henry Cort, Inventor of Iron Puddling.

The following interesting sketch of Henry Cort is taken from Smiles's "Lives of the Iron-workers and Tool-makers":—

Henry Cort was the great systematizer of the iron manufacture. He relinquished his business as a navy agent about the year 1775, and took the lease of certain premises at Fontley, near Fareham, at the north-west corner of Portsmouth Harbor, where he erected a forge and iron mill. The improvements embodied in his two patents of 1783 and 1784 were of a most important character. In the first patent he describes his method of making iron for "large uses," such as shanks, arms and palms of anchors, by piling and faggoting; that is to say, by welding together bars of iron of suitable length, forged on purpose, and tapering so as to be thinner at one end than the other. These bars were laid over one another like bricks in a building; the faggots so prepared were put into a common air or balling furnace, and when at a welding heat they were brought under a forge hammer of great size and weight, and forged into a solid mass of iron. He also notices the process of working the faggots by passing them through rollers, which was employed by him for the purpose of cleansing the iron and producing a metal of purer grain. Cort's second patent relates to his improved method of manufacturing bar iron from the ore or from cast iron. This method was a happy combination of processes practiced before his time; he employed the reverberatory or air furnace, without blast; and, he worked the fused metal with iron bars until it was brought into lumps, when it was removed and forged into malleable iron. The bottom of the reverberatory furnace was hollow, so as to contain the fluid metal introduced into it by ladles, the heat being kept up by pit coal or other fuel. When the furnace was charged, the doors were closed until the metal was sufficiently fused, when the workmen opened an aperture and worked or stirred about the metal with iron bars, when an ebullition took place, during the continuance of which a bluish flame was emitted, the carbon of the cast iron was burned off, the metal separated from the slag, and the iron becoming reduced to nature, was then collected into lumps or loops of sizes suited to their intended uses, when they were drawn out of the doors of the furnace. They were then stamped into plates, and piled or worked in an air furnace, heated to a white or welding heat, shingled under a forge hammer, and passed through the grooved rollers after the method described in the first patent. As there are not fewer than 8,200 of Cort's furnaces in operation at the present time in Britain alone, we need not speak of the great advantages of his system of conversion. His great merit consisted in apprehending the value of certain processes as tested by his own and others' experience, and combining and