

## MISCELLANEOUS.

## New Clock for our City Hall.

A new and beautiful Turret Clock, has been built for the Hall Tower of this city, by Messrs. Sherry & Byram, of Sag Harbor, L. I., and it is now in the course of being placed in its proper position. It was something much wanted, viz., a first-rate clock of American manufacture—one that will keep time equal, if not superior, to any in the world, and this we believe will be done by this new clock.

The frame of the clock is composed of iron and composition metal, the length of which is four feet, the width two feet, and the height two and a half feet, or, including the bed, plate, and pedestal, the whole height is four and a half feet. The weight of the whole is about 1,000 lbs., 300 lbs. of which are iron and steel, the remainder brass and composition. The works are so constructed that any wheel may be removed without disturbing the next. The large or main wheels are twenty inches in diameter and weigh 60 lbs. each; the other wheels are all in proper proportion, and of the purest brass hardened in its composition. The barrels are also of brass, ten inches in diameter, and of length sufficient to receive sixteen turns of the cord, which gives the clock eight days of running time. The arbors are of cast-steel; the pivots hardened to the highest degree of temper, and run in bosses of a compound metal, which, from its nature is almost free from friction; and from several years' use, is found to be almost perfectly unaffected by wear.

To the barrel of the time train is attached a retaining power, similar to that used in lever watches and chronometers, which keeps the clock going while the action of the weight is taken off in winding. The wheels and pinions are all cut in aliquot numbers, so that any wearing that may occur in the gearing will only serve to continually diminish the friction; and so smooth and perfect are their operations, that, although the time train weighs near 200 lbs., it is now running with a power of only about sixty lbs. weight. The escapement is of the old well-tried dead-beat form; the escape wheel is  $6\frac{1}{2}$  inches in diameter, and although its acting part is near one inch upon the pallets, yet, from the neatness of its construction, its weight is only ten ounces, and turns on its pivots in two splendid jewels. The pallets are of the finest agate, one inch in length and breadth, set in sockets of steel, and exhibit a very refined skill in mechanical manipulation.

The pendulum rod is of a peculiar kind of wood, 168 inches in length, and swings once every two seconds; and has a brass lenticular weight of 120 lbs., with a compound regulator and compensating fixture, so arranged that while it is utterly unaffected by the most extreme changes of temperature, the performance of the clock may be corrected with the most minute certainty to almost perfect measurement of time.

The spring by which the pendulum is suspended is near two inches in width, but its thickness is only  $\frac{1}{1000}$ th of an inch. The pendulum is not attached to the frame of the clock as is usually done, but is suspended to a strong iron support secured to a standard braced with great strength, thus preventing any possibility of the rocking of the frame that would occur from its vibrations with so heavy a body attached. An application has been made for a patent, through our Agency, for this beautiful pendulum.

A powerful winding gear is affixed to each barrel, and the parts so constructed that the pinion is shifted from one barrel to the other, and disengaged when the weights are wound up.

In speaking of church clocks, a correspondent of one of our monthly cotemporaries justly speaks of the very inefficient church clocks scattered throughout our country. In fine clocks, he says, "we Americans, with all our boasted skill and ingenuity, are very far behind some other nations." He also proposes a new device, named a remontoir escapement, recently invented by a Mr. Dent, of London, which he thinks will make all our church clocks go as correctly as chronometers. There

is just as much mechanical skill in our country as in any other, and we have no doubt but this new clock of Messrs. Sherry & Byram's is equal to any in Europe. The churches throughout our country can be furnished with clocks that will keep time, if they choose to save money by paying for good workmanship instead of losing it by buying cheap clocks, "to deceive time and all the parish." Better have no clock in a church or steeple, than a poor one.

## The Caloric Engine in Russia.

We understand that since Captain Ericsson's Caloric Engine was first brought before the public, enquiries with respect to it have repeatedly been made by the Russian Government. It has accordingly been supposed that Russia would be one of the first countries to adopt the new invention. A great deal of attention has certainly been paid to the subject in Russia, and great interest is taken in it. But it seems that Capt. Ericsson has a rival there who threatens to carry off the patronage of the Government. The "Northern Bee," a German paper published in Prussia, states that on Feb. 22, a Mr. Nobel exhibited an improvement on Ericsson's machine, which was kept in motion for some time to the great satisfaction of all the spectators, among whom was the Grand Duke Constantine. The improvement consists in putting the cylinders inside of each other, whereas Ericsson puts the supply cylinders on top of the working cylinders. About the arrangement of the machine and the results produced, the "Northern Bee" communicates nothing further.

[The above is from an exchange; we think the improvement on the "Ericsson," which the "Northern Bee" speaks of, is one of the most peculiar and wonderful ever contrived. An Ericsson engine has four cylinders—two hot air and two cold air, and these the Russian puts inside of one another. Well, wonders will never cease.

## On Sugar.

The following description of this essential article of food, the use of which is now universal, and which forms so important an ingredient in the economy of vegetable nature, is extracted from a new work by Dr. Pierce, lately published, and which will be found noticed in our review of new publications:—

"The physical properties of sugar are so well known, that it is unnecessary to describe them. Sugar is very soluble in water and diluted spirits, is almost insoluble in absolute alcohol, and is entirely insoluble in ether.

In our market only two sorts of sugar are met with, the cane and the maple sugar, while in different parts of Europe two other sorts occur, the beet and grape or starch-sugar.—Another variety, sugar of milk, is sometimes prepared for pharmaceutical purposes. But this article has little in common with the other sugars, except the name, and a sweetish taste. The cane, beet, and maple sugars have about the same sweetening power; the grape-sugar has much less, and the sugar of milk less than grape-sugar.

The principal impurities to be sought for in cane-sugar are inorganic matter, water, molasses, farina, and grape or starch-sugar. The latter substance, though extensively added in Europe to cane-sugar, is not, I think, much, if at all, used for adulterating in this country. It may be detected by the action of concentrated sulphuric acid and of a solution of caustic potassa; the former blackens cane-sugar, but does not affect the starch-sugar, while potassa darkens the color of starch-sugar, but does not alter that of cane-sugar. But the Copper Test is far more delicate. Add to the solution to be tested, a few drops of a solution of blue vitriol, and then a quantity of potassa solution, and apply heat; if the cane-sugar is pure, the liquor will remain blue, while, if it be adulterated with starch-sugar, it will assume a reddish-yellow color. Sugar of milk acts with the copper test in the same way as starch sugar.

Inorganic matter is determined by incineration, farina by the Iodine Test, water by drying at  $212^{\circ}$ , and molasses by getting rid of it by recrystallization from alcohol, as also by the color and moisture of the article.

The natural impurities of sugar are gum and tannin; gum is detected by giving a white

precipitate with diacetate of lead, and tannin by giving a black coloration or precipitate with persulphate of iron.

An experienced sugar dealer easily judges of the value of sugar by the taste, smell, specific gravity, moisture, and general appearance.

The value of molasses may be determined by drying at  $220^{\circ}$ , and by the taste.

## A Correct Account of the Explosion of the Blast Pipe.

On another page we have published two short letters, both agreeing as to the cause of the explosion of the Blast Pipe at the Lehigh Crane Iron Works. The annexed letter is from one on the spot, who gives an account of the explosion and the cause, which nearly agrees with the opinions expressed in the two letters on the page spoken of.

Messrs. Editors—The cause of the accident at the Lehigh Crane Iron Works, was on account of leaving a valve open between the tuyeres and the blast pipe, when the engine and furnace had been stopped about 30 or 40 minutes. The iron was run out a little after 8 o'clock, and the accident took place at 9. Gas returned through the valve, was ignited, and exploded. The only safe way to prevent the occurrence of such an accident is to have a pressure of air always against the valve, and to have the valve near the tuyeres. The accident interrupted the works for three weeks; it was serious, but nothing like what was represented. About 220 tons of iron are made per week. The furnace is near 60 feet high, with an 18 feet bosh. The smallest movement of the bellows will keep back the gas, but when the engine is stopped it is necessary that all communication with the pipe and fires should be closed tight. \*.\*

## Miscellaneous Items.

Responsible parties in England, have petitioned Parliament for a charter to work some recently discovered gold mines in one of the Townships of Canada East. It is also reported that gold has been discovered in Jamaica, W. I.

Seven hundred tons of ice were recently shipped to Cincinnati, from Sandusky, costing on delivery, about \$8 per ton, but owing to the great scarcity of the article in that locality, it readily sells for \$30 per ton.

White pine lumber is being shipped from this part for Australia.

Guano has been discovered in the Gallapagos Islands.

A free-stone of a light bluish gray color has been found in the Cheat River District, Va., and used successfully for building purposes.—It was unknown until laid open by the building of the Baltimore and Ohio Railroad, which has brought into use this source of internal wealth. The quarries are situated immediately on the route of the railroad, and cars can thus be laden with the greatest facility and economy.

About 100 tons of castings for the India Rubber Works, about to be established in France by Hiram Hutchinson, late President of the Newark India Rubber Manufacturing Co., are now in progress of manufacture at Trenton, N. J.

A curious circumstance is mentioned in connection with the burning of the Oil Works at New Bedford, Mass.: a large quantity of spermaceti in bags, placed between iron plates, for the purpose of pressing, burnt completely, leaving the bags themselves almost entire. This is most singular as the plates must have been subjected to a red heat.

Prince Albert is among the contributors of works of art to the Industrial Exhibition. The portraits of her Majesty, himself, Prince Arthur, and of the late Duke of Wellington, forming the picture painted by Winterhalter, is his contribution. The Baron Marochetti has completed a colossal equestrian statue of Gen. Washington, which is about to be embarked for the Exhibition.

The King of Sweden, in consideration of the great scientific practical value of Lieut. Maury's labors, has ordered that the Swedish navy co-operate with this officer, by making observations according to the form prescribed for his "Wind and Current" chart.

## Electricity, Curious and Beautiful Experiments.

Electricity, as widely as it is diffused, and powerful and active as its agency is in all the operations of nature, is yet scarcely any better known in its causes and effects than it was six thousand years ago. Modern science has penetrated a step or two into the arcanum of its mystery, and the revelations have been as astonishing as they are beautiful. When Morse harnessed the lightning, and made it travel with the speed of light, as a common courier, a great and important first step was taken in the task of reducing this wonderful agent to man's purposes, and making it a useful servant to his wants. Much yet remains to be discovered, but the investigating mind sees in many of the manifestations of electricity, to what a variety of practical and useful purposes it may yet be applied. One of the most beautiful and curious experiments performed through its instrumentality which we have seen, is that of lighting gas with the tip of the finger. This experiment may be easily performed, and has been done by James Swaim, of this city, repeatedly, in connection with the beltings of the engine and shafting of the press room, and it is far more astonishing than the spirit rappings, which are setting so many people crazy. Friction, it is well known, will produce electricity in certain substances, and the friction of a gutta percha or common leather working belt upon the fly-wheel or pulleys of a steam engine and shaftings produces it in considerable quantities.—If a person will insulate himself by standing upon a board fixed upon glass insulators—common porter bottles would answer—and hold an iron bar or a number of iron spikes in his hand, their points almost touching the belt, he may, by extending the opposite hand to a gas-burner, light it with the tip of his finger as easily as with a match. He will feel a sensible shock pass through him, a pricking sensation in his finger joints, and see a brilliant spark pass off with a crackling sound to the gas-burner. The electric fluid will pass through several persons joining hands, the same as with an electric battery, and the last may fire the burner.—[Philadelphia Ledger.

## Saw-Dust as Litter.

The above material has been successfully introduced as litter for horses in Ohio, instead of straw, and may be profitably employed for this purpose when the latter article is dear. The "Ohio Cultivator" contains the following remarks upon the subject: "Several bushels of dry saw-dust are thrown into the stall, upon which the horse stands during the night. In the morning it will be found that about a bushel has to be removed—one-half of which is manure and one-half saw-dust, so well saturated as to contain a large portion of ammonia, performing the double office of absorbent and purifier; thus the air of the stable is kept pure, and the ammonia saved for the compost heap. This compost Mr. Blake has applied to his stiff clay land, and reports that it operates like yeast, making the ground very light and mellow. In the morning, that portion of the bedding which remains dry, is shoved up under the manger, to serve for another night.

Another advantage from this material for bedding is that a horse which lies upon it is much easier cleaned off than one which lies on straw; the saw-dust entering among the hair brings away the secretions, when the curry comb and brush are applied, leaving a bright lively coat. In warm weather it has another great advantage, that of being much cooler than straw, so that a tired and heated horse can sleep pleasantly, without incitements to feverish restlessness. The establishment of steam mills in all parts of the country, renders the material easy of access to almost every neighborhood, and we doubt not when its virtues are better known, it will be generally applied to stable use, as a means of comfort to the horse, and also of turning an otherwise useless article into profitable account."

A diamond of beautiful form and the first water, accompanied by a fine sapphire, has been found in Australia.

Mr. Avery, whose improvement in joining stones was noticed last week, resides in Norwich, Conn., and not Stonington, as erroneously mentioned.