Science and Art.

Rotation of Spheroids.

M. Boutigny, of Paris, has published an account of experiments on the rotation of a body in a spheroidal state. These are described as follows :—

"By means of a few drops of ether, he attaches a small cone of gum guaiacum to a highly heated silver capsule. As soon as the cone reddens on the summit, one or two grammes of water are dropped into the capsule, and a remarkable effect takes place. The water becomes agitated from right to left, left to right, backward and forward, indeed in every direction; but presently, as it assumes the spheroidal shape it sets itself spontaneously in motion around the cone from left to right, or from east to west. The motion, at first slow, goes on increasing, until its rapidity is such as scarcely to be followed by the eye. If the spheroid be stopped, by placing a small glass rod in its way, it pauses for a while, but only to resume its former movement. M. Boutigny considers this phenomenon to be well worthy the investigation of geometers, and strikingly analogous to the rotation of the earth."

The above is taken from one of our cotemporaries, and we have seen it in several. We cannot understand how a cone of the gum guaiacum could be prevented from burning in a highly heated platinum capsule, nor how the spheroid could rotate from west to east any more than from east to west. It all depends upon the point from which it starts.—The spheroid could not rotate around a cone on a horizontal spindle; it must, therefore, have rotated in a horizontal curve, not exactly analagous to the rotation of our earth.

Beautiful Paraffine Candles.

Paraffine is a pure white solid substance, resembling wax, when melted in small quantities, but when cooled slowly it resembles spermaceti. It has no taste or smell, melts at 112° Fah.; burns without producing smoke, and is thus admirably adapted for making candles. It resists the action of all the strong acids, alkalies, and chlorine; these are peculiar properties, hence its name from *parum affinis*, denotes its want of affinity. It is made from peat tar, coal tar, and coal oil, but owing to the troublesome and expensive process of its manufacture, it is dear. Could it be manfactured cheap from coal tar and coal oil, it would be the best known substance for making candles. We hope improvements will yet be discovered for manufacturing it so cheap that it can be sold at a cost not exceeding that of tallow.

The candles heretofore made from it, have been chiefly confined in their sale and use to the city of London. They resemble spermaceti, having the same crystalized appearance, but a patent has lately been obtained by J. K. Field, and C. Humphrey, of England, for a very simple method of making them to have an appearance superior to wax candles. The paraffine is melted at 140°, then run into candle molds, heated up to 150°, then after standing in these for a few minutes, to allow all the bubbles of air to escape, the molds are plunged into cold water. This sudden cooling of the paraffine prevents it from forming into fine crystals, and the candles so made are nearly transparent, and draw easily from the molds.

The manufacture of paraffine, we believe, is unknown in our country, but we have no doubt of its being yet manufactured in great quantities, because we have the largest bituminous coal fields in the world, and these contain the means of supplying paraffine materials for thousands of years.

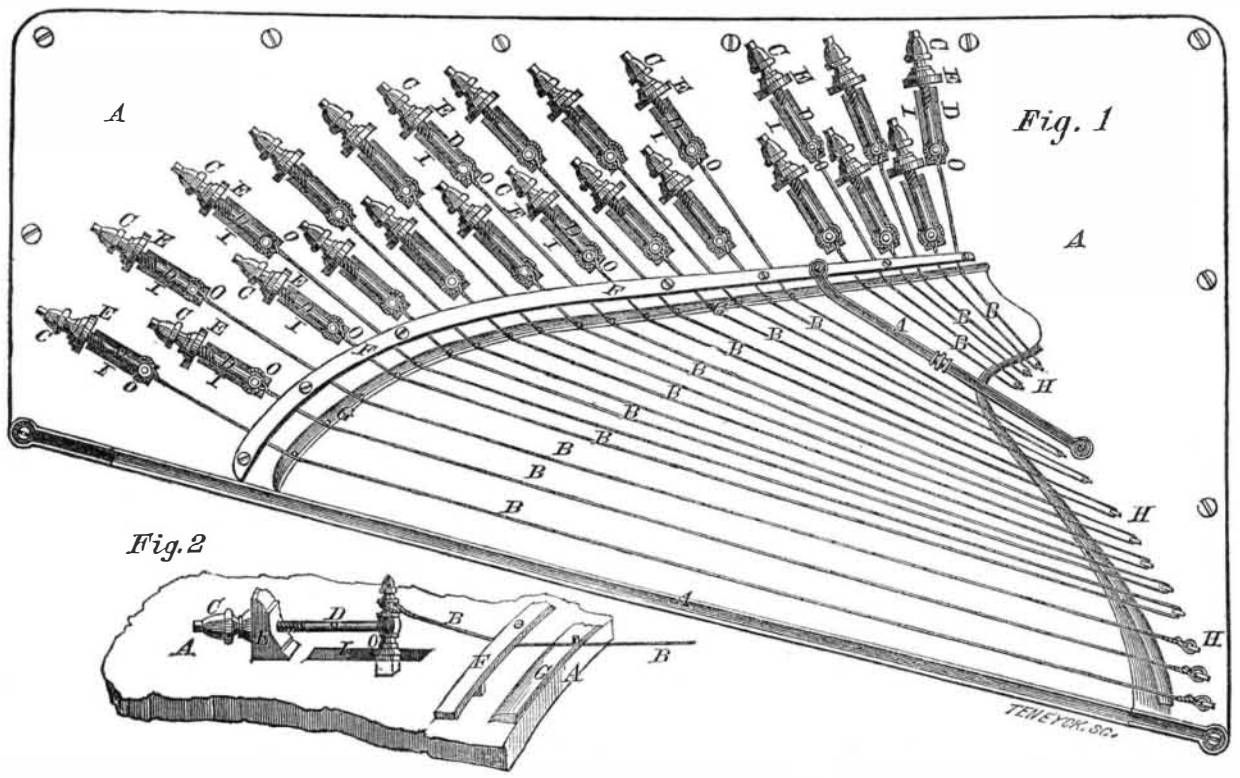
Street Electric Chronometers.

The ingenious artist M. Breguet, of Paris, has devoted himself to the construction of chronometers in connection with the electric telegraph. He has placed a chronometer of great simplicity in a gas lamp. It consists of a dial armed with two needles moved by electricity, which mark the hours and minutes. The whole mechanism consists of three wheels, a pinion, an escapement, and a double ratchet, with a means of reversing the current; two wires pass from the lamp to a regulating clock situated in the apartment of M. Breguet. This inventor proposes to divide Paris into 12 electric districts, and place in each mayorality a regulator, which shall distribute time throughout the district, both to public lamps and private houses.

Workmen's Model Houses.

No less than 2500 workmen's houses are about to be built in Paris, in groups of fifty, each group forming a square, with an open space in the center. Each house is to accommodate six families, at a rent of about $26 to each. Each group is to have a public bake-house and bathing establishment.

IMPROVEMENTS IN PIANOFORTES.



Improvement in Musical Instruments.

The improvement herewith illustrated consists in the application of screws for tuning the strings of musical instruments instead of the ordinary tuning pins.

Fig. 1 is a plan view of the iron frame of a pianoforte with the tuning screws attached, exhibiting particularly their relative position and arrangament upon the frame. Fig. 2 is a section of the iron frame in perspective, showing the construction, arrangement and operation of a separate tuning screw. B are the strings, and H their hitchpins. G is the tuning block bridge, over which all the strings pass to the front ends of the tuning screws, D. The latter have on their upper sides small projections to which the strings are looped. The other ends of tuning screws, D, are provided with the screw threads, and pass loosely through holes in the fixed studs, E. The nuts, C, turn upon the tuning screws and abut against the studs, E.

The front end of the tuning screw, D, has a projection, O, on its under side, which rests upon the iron frame, A, and prevents the cylindrical part of it from being bent by the pressure of the strings. The lower extremity of this projection, O, slides loosely in a slot, I, which prevents the tuning screw from turning, while its nut, C, is tightened. F is a suspension bridge passing over all the strings at such a hight as to press them firmly down upon the tuning block bridge, G, thereby producing a more firm, round, and clear sound than can otherwise be obtained.

To tune an instrument with these tuning screws, it is only necessary to turn the nuts, C, with a proper wrench or key, and the screw, will be drawn backward and stretch its string to the proper pitch and harmony.

Pianofortes provided with this improvement can be tuned with as much accuracy and ease as a guitar; and when once tuned they will keep their perfect harmony a greater length of time than they can do by the ordinary contrivance.

Another advantage of this improvement is the facility it affords for decoration and ornament, at comparatively little expense.

From the above, with reference to the engravings, it can now be easily observed that these improvements will supply a long-felt want, especially in pianofortes. This is a very cheap and simple device. The ease with which it operates makes its introduction particularly desirable, as it will enable ladies to tune their own pianos at all times. For further information address the inventor, George L. Wild, No. 272 South Charles street, Baltimore, where pianofortes having these improvements attached can be seen. Patented Sept. 5, 1854.

Gold Extracting and Chemistry.

There is an ore of arsenical pyrites at Reichenstein, in Silesia, which contains 200 grains of gold to the tun. For three centuries all attempts to work this ore, so as to extract the gold, failed—the precious metal being too minute in quantity to pay for the expense of extracting it. Recently, however, this has been accomplished, it is stated, by Prof. Plattner, of Freiberg, a distinguished chemist. By new processes and new re-agents he extracts the 200 grains of gold out of 15,686,000 grains of ore, at a profit. This is certainly one of the greatest triumphs of modern chemistry.

Restoring Burnt Iron.

The acting-manager—Mr. Wm. Clay—of the Mersey Steel and Iron Works, at Liverpool, and the fabricator of the great wrought-iron 13 inch-gun, says that wrought-iron crystalized by exposure to heat or carelessly burnt, "may have its fibers restored by working it under the hammer or in rolls." This is a valuable hint to workers in iron.

New Alloy Resembling Silver.

An alloy composed of nickel, 4 parts, copper, 5, tin, zinc, lead, iron, and antimony, each one part, resembles silver in appearance, and possesses similar properties. These metals are placed in a crucible, and melted in a fire into a button, which can be afterwards rolled into sheets. A patent has been obtained for this alloy by George Toncas, of Paris, who has termed it "Toncas silver."

The Expected Great Comet.

Several of our cotemporaries state that J. R. Hind, the celebrated English astronomer, having enlisted Prof. Littrow, of Vienna, to search for the astronomical charts of Fabricus and Joachim Heller—who had devoted much attention to the course of the great comet of 1556, which had a tail of 60 degrees—their efforts have been crowned with success, and from an examination of these charts Mr. Hind has come to the conclusion that the reappearance of this comet is near at hand.

Iron Tramways for Common Roads.

B. H. Babbage recently read a paper before the Philosophical Society, in London, on the benefits that would result from placing iron tramways on common roads on which there was a great deal of travel. This is a feasible project,—one that would render such roads adapted for light steam carriages.