ELECTRIC JEWELRY.

Among the specialties for which the French are noted there is nothing more curious than the electric jewelry, several specimens of which are shown in the accompanying cuts, which we take from *La Nature.*

The scarf pin represented in the left-hand figure consists of a small golden rabbit holding a lilliputian mallet in each paw, with which it beats a roll on a small golden gong. The right-hand figure represents a golden skull, with movable diamond eyes and an articulated jaw. This is also a scarf pin, and its eyes and jaw are made to move in a singular manner. The bird shown in the center of the engraving is an ornament for the head dress. It is of gold, thickly studded with diamonds.

These pieces are connected by a fine concealed wire with a small battery carried in the vest pocket. When the battery is made to operate, the rabbit will strike the gong, the bird will move its wings, and the skull will roll its eyes and gnash its teeth.

The battery consists of a zinc and carbon couple contained in a hermetically closed vulcanite case, the zinc and carbon occupying the upper half of and the exciting fluid the lower half of the case. When the case is in a vertical position the exciting fluid does not touch the zinc or carbon, but when it is inverted or placed horizontally, the fluid comes into contact with the zinc and carbon, and the current traverses the coils of the diminutive magnets, which operate the mechanism of the pieces. The arrangement of the internal parts of both battery and scarf pin will be understood by reference to Fig. 2. The mechanism is much like that of an ordinary vibratory electrical bell.

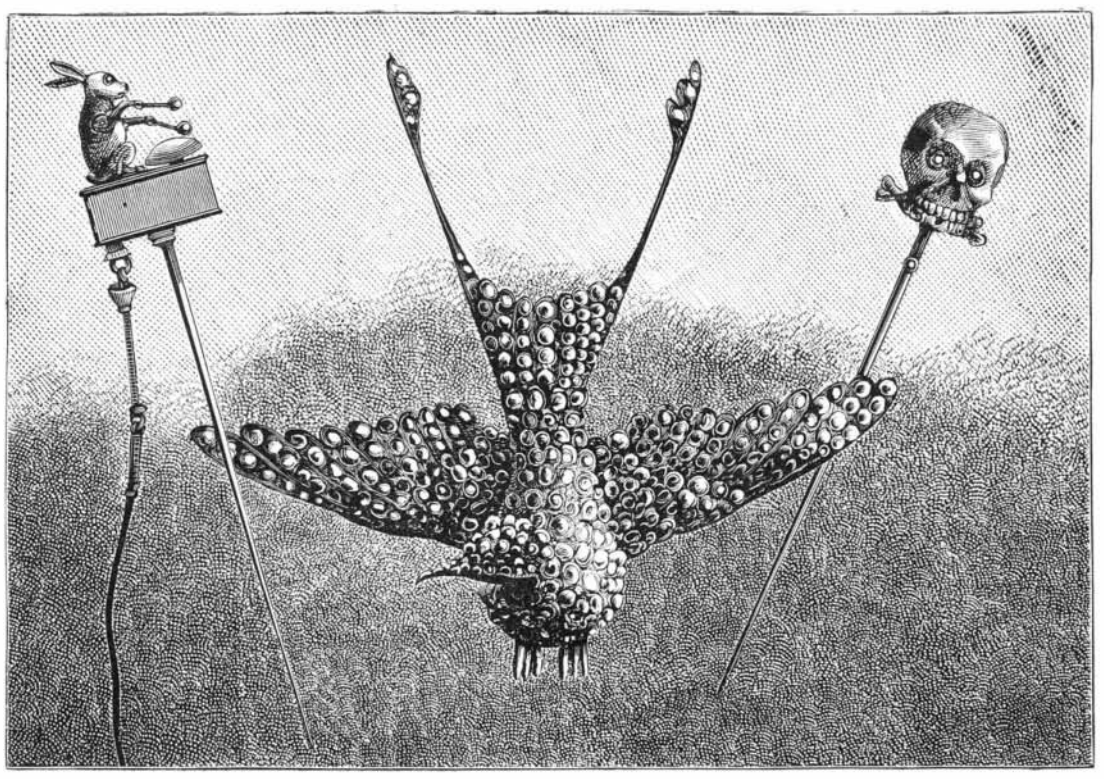


Fig. 1.—FRENCH ELECTRIC JEWELRY.

PALISSY PLATE.

The plate shown in the accompanying engraving is a copy of one of the rare and valuable productions of Palissy. It is painted in enamel colors, both opaque and transparent.

MISCELLANEOUS INVENTIONS.

Mr. Robert P. Lummis, of Altoona, Kan., has patented an improved clothes washer, which is simple in construction, convenient, and effective, washing the clothes very quickly and thoroughly. The invention consists in the combination of an air-forcing apparatus with the funnel or pounder of a clothes washer.

Mr. Charles W. Ball, of Macon, Ill., has patented improvements in axles for carriages, wagons, and other vehicles, the object being to more uniformly and efficiently lubricate the spindles, and to obtain a more perfect adjustment of the running gear. The axle has an oil reservoir, and in its spindle a recess separated by an apertured partition from the reservoir, so that the recess may be filled with packing that cannot work into and wrap around the spindle.

Mr Charles N. Pike, of Readsborough, Vt., has patented an improved machine for cutting grass and grain, which is so constructed as to have no down-draught upon the horses' necks.

An improvement in sewer gas consumers has been patented by Mr. William H. Ransom, of Philadelphia, Pa. The object of this invention is to prevent escape of sewer gas and vitiated air from sewers, cesspools, and holds of vessels into the house or vessel, by leading such gases to a chamber heated sufficiently to kill the virile matters, and afterward discharging the same to a chimney flue.

Mr. Benjamin Sniffin, of Sing Sing, N. Y., has invented a rowlock which is so constructed as to support the oars firmly when in use, and at the same time may be readily detached from the gunwale of the boat when not in use. It consists in a rowlock provided with a tapered dovetailed base plate and a set screw, in combination with a bed-plate provided with a tapered dovetailed groove.

An improved apparatus for defecating cane juice has been patented by Mr. Lewis B. Hart, of Hope Villa, La. This improvement relates to sulphur machines for defecating cane juice, and are for the purpose of purifying and cooling the sulphur fumes before they enter the juice box, and to cause the complete mingling of the fumes with the juice in the box. It consists in the combination of a furnace, a water box, and a juice box, the latter being provided with corner strips, spirally arranged paddles, with their faces inclined to their shaft, and a connection with the furnace through the water box.

Messrs. Charles F. Leimer and Ludwig W. Kempf, of Deadwood, Dakota Ter., have patented a miner's knife having a compass arranged at the side, a pivoted magnifying glass at the rear end, and a pencil holder at the back.

FIG. 2.

Mr. John Dimelow, of Austin, Tex., has invented an artificial stone formed of hydraulic cement, hard clinker, soft clinker, and water.

An improvement in bake pans has been patented by Mr. Charles Jackson, of California, Ohio. The object of this invention is to improve the construction of the bake pans for which letters patent No. 204,975 were granted to the same inventor June 18, 1878. The invention consists in the combination, with the two pans, of fasteners provided with the handles, and made of tubes slotted longitudinally to receive and fit upon the wires of the pans.

An improvement in buttons, patented by Mr. Rudolph Liebmann, of New York city, consists in providing the button with a socket in which is inserted a spiral spring, and in applying it by causing the free end of the spring to engage the material and draw it up into the socket, so as to form a shank, which is held securely, and thus fastens the button to the clothing.

An improvement in bale ties has been patented by Mr. William Hill, of Henderson, Texas. The invention consists of a double hook, or a hook having a barb on the back of the shank near the eye, through which one end of the band is looped, while the other end of the band is provided with two slots, in which the hook and barb engage.

An improvement in earth closets has been patented by Mr. Richard W. Riddle, of Minneapolis, Minn. The invention consists essentially in a novel construction and arrangement of devices for operating the earth-carrying apron by the raising and lowering of the lid of the seat, whereby economy of space is secured, and the apparatus is adapted to be used either in connection with a stationary closet or a vault out of doors, or with a portable closet or commode used in the house.

Mr. John L. Petterson, of Brooklyn, N. Y., has patented an improved portable fire escape, which can be readily fitted for use, easily manipulated, and is especially adapted for carrying sick persons. It consists in a car inclosed on all sides by canvas, having top and bottom frames, entrance openings, and foot openings.

An improvement in raising and transferring hides in tan vats has been patented by Mr. Joseph A. Smith, of Rochester, N. Y. The object of this invention is to improve the construction of the machine for which letters patent Nos. 205,596 and 214,220 were granted July 2, 1878, and April 8, 1879.

Mr. Henry Smith, of Charlotteville, N. Y., has patented an improvement in the construction of the stools used by undertakers as a support for burial caskets, etc. It consists in pivoting the upper ends of the legs on one side to those on the opposite side, just below the top bar of the stool, and connecting the legs midway of the length of the stool by a jointed rod having its ends pivoted to opposite side bars, whereby the legs are capable of being folded together.

An improvement in combined pipe case and tobacco pouch has been patented by Mr. Rufus E. Dixon, of New York city. This invention relates to improvements upon the invention for which letters patent No. 35,305 were granted to the same inventor on the 20th day of May, 1862. These improvements relate to the construction of the opening through which the tobacco passes down into the bowl of the pipe, the slide or valve for closing the said opening, and the arrangement of the match box in the case.

Mr. Henry McCue, of Terre Haute, Ind., has invented an improved kiln for burning brick, which is so constructed as to prevent the shriveling, cracking, breaking, or glazing of eye or jet bricks, to form less soft or clinker brick, to burn the brick to a more uniform size and color throughout the kiln, to use less fuel, to produce a better combustion, to allow the heat to be directed to any desired part of the kiln, and to require less labor in working the kiln.

An improved pendant for watch cases has been patented by Mr. Casimir H. Bisson, of Henderson, Minn. The object of this invention is to construct a watch case having all its joints air-tight, so as to thoroughly prevent access of dust to the works in the case. It consists in combining, in a stem-winding watch, a flanged stem, crown, and chambered pendant with a packing ring and nut.

An improved couch, patented by Mr. Benjamin F. Dare, of St. Louis, Mo., serves the double purpose of a seat and couch by day and a perfect double bed by night. It is simple in its construction and easily adjusted to its different uses. When the couch is unfolded it forms a bed of full dimensions, that rests firmly on its permanent support. It has ample room for bed clothing and pillows, and has the advantage of thorough ventilation and protection from dust.

Mr. John S. Gilbert, of New York city, has invented an improved discharge plug for wash basins, bath tubs, and other receptacles of water connected with a waste or discharge pipe leading to a sewer or other receiver, and it is so constructed that it may be tilted to allow obstructions to be removed from the upper ends of the discharge pipes, and may be detached to allow the pipe of a suction or force pump to be inserted for removing obstructions lodged further down.

An improved key ring, patented by Mr. John W. Jochim, of Ishpeming, Mich., is formed of the open ring having a notched flange

PALISSY PLATE.

formed upon one end, and a neck, a head, and a shoulder formed upon the other end, to interlock with each other.

An improvement in gas carbureters, patented by Mr. Horatio C. Train, of Kansas City, Mo., consists in the combination, with a carbureter, of a packing that consists of broken corn cobs.

An improvement in circular saws, patented by Mr. Daniel W Weaver. of Blackshear, Ga., is designed to prevent dishing or buckling of circular saws by unequal expansion when heated; the invention consists in a saw made in two portions, the central portion being separate, and attached in a manner that permits radial expansion and contraction without effect on the outer portion or rim

An improved animal poke has been patented by Mr. William Montgomery, of Amity, Pa. This device is for placing upon horses or cattle to prevent the animal from jumping fences or breaking them down; and it consists in a yoke adapted for resting upon the neck of the horse and attached by straps passing around the body, whereby the yoke cannot be thrown forward by movements of the head and neck, but may adjust itself to the position of the animal in feeding or lying down. The yoke is also fitted with spurs to prick the shoulders when pressure is caused by an attempt to throw down a fence, and with springs that prevent any pricking action by the weight of the yoke.

Mr. Wilson D. Scott, of San Francisco, Cal., has invented an improvement in bungs for barrels, kegs, etc., for holding beer and other similar liquids. It is so constructed as to admit air automatically to take the place of the liquid drawn out, and thus allow the liquid to flow freely while being drawn. It will close itself automatically when the outflow of the liquid stops, and will allow the valve to be locked when handling the cask.

Mr. Robert Kalbitz, of St. Louis, Mo., has invented an improved baking oven for stoves, arranged so that when the door of the oven is opened the dish containing the object that is to be baked is drawn out automatically, and in the same way is replaced when the door is closed.

An improved hame clip has been patented by Mr. William F. Beck, of Crawfordsville, Ind. It is made in two parts—a hook plate and a locking plate—of any suitable metal, preferably malleable iron, of a width corresponding with the width of the trace, and of suitable length to grasp a sufficient portion of the length of the trace.

Mr. Roy O. Crowley, of New York City, has patented an improved apparatus, by the use of which beer and other liquids, during the process of fermentation, may be kept at a uniform temperature automatically and without its being necessary to change the temperature of the room.

Mr. Edmund McKinney, of Key Port, N. J., has invented a simple and efficient fastening device for crates used in transporting fruit and other produce. It consists in a hasp secured upon the cover of the crate, and a socket piece fitted with a locking spring tongue, secured upon the box for holding the hasp, in connection with a screw for clamping or locking the parts to prevent their disconnection.

An improved combined door bolt and check has been patented by Mr. Walter S. Burnham, of Ashtabula, O. The object of this invention is to provide a chain bolt that, when applied to a door, will serve to securely hold it closed or partly open, as may be desired.

Messrs. Robert Jones and Lewis S. Bonbrack, of Waynesburg, O , have patented an improved metal roofing, which consists of an anchor provided with a short and a long prong, so arranged that the short prong is bent over the flange of one of the roof plates, and the long prong is passed through and passed over the flange of the adjoining plate. The flange of the latter plate is then bent down and over the flange of the first plate, so as to form the cap of the roll joint.

Mr. John W. Lewis, of Lester Manor, Va., has invented an improvement in ventilating pads for horse collars, breast straps, saddles, back bands, and other parts of harness, to give elastic pressure on the animal, furnish ventilation to prevent galling, and permit the use of the harness upon galled animals without hindering the healing of the sores. It consists in a harness pad formed of parallel perforated rubber tubes, secured together in position by similar tubes attached at right angles thereto.

The Cape of Good Hope.

The Cape of Good Hope lies at the end of a long, narrow promontory, running nearly north and south, and forming between itself and Cape Hanglip, on the east, a large bay known as False Bay, while at its point of origin from the mainland and on its east side is Table Bay, with Cape Town at its head.

The promontory has a sort of backbone of mountains, which in some places come right down steep into the sea; in others, are flanked by more or less extensive sand flats.

The mountains are highest toward the northern extremity of the ridge, which terminates in the far-famed Table Mountain, 3,550 feet in height. Constantia Berg, about one quarter of the distance from this point to the Cape, is 3,200 feet high. The remaining mountains range from about 2,000 to 1,500 feet.

The sandy flats are, toward the southern part of the promontory, almost confined to its western side, the steep slopes of the mountains on the False Bay side being for the most part washed directly by the sea, but at the head of False Bay a wide extent of flat sandy plain extends right across the head of the bay and round the foot of Table Mountain northwards. This plain is known as the "Cape Flats."

The Cape of Good Hope is at the tip of the promontory, and is not (says Mr. Moseley, in his Challenger Notes), as I used to think, the southernmost point of Africa. Cape Agulhas, to the eastward, is far south of it.

The mountains are entirely composed of a hard metamorphic sandstone, passing in many places into a white quartzite, which is disposed in perfectly horizontal strata. This perfect and remarkably uniform horizontality of the rock beds is the cause of the peculiar form of the Cape land surface, and forms the chief feature in the landscape.

Everywhere the mountains rise by a series of steps, with flat intervening surfaces. Table Mountain itself derives its name from its horizontal flat top, bounded by perpendicular cliffs rising straight up from the flats; and the same formation being continued for hundreds of miles inland, the country continually rises in steps, forming successive table lands, known as the Karroo Plains, about 2,000 feet above sea level, and beyond these the Ruggefeld, 3,500 feet in elevation.

The hills about the Cape district have all an exactly similar appearance as far as their clothing with vegetation is concerned. They look not unlike Scotch moorland, being covered everywhere with low bushes without trees. The vegetation has a general brownish or grayish tint; there are no bright greens in the landscape. This arises from the fact that the plants are nearly all evergreen, and have, as a rule, either narrow needle-like leaves, like the pines, or leaves covered with gray downy hairs, in fact, all sorts of contrivances for resisting their great enemy the drought.

The most characteristic feature, however, in the landscape is the showing through, in all directions, of the red soil between the bushes and clumps of vegetation; the interspaces not being filled in with grasses, and no continuous covering of vegetation being formed.

Above Wynberg are the talus slopes and débris mounds of Table Mountain, covered with the wonderful silver tree, whose leaves shine like burnished metal, and which is found nowhere else in the world but about the slopes of this mountain and its immediate neighborhood. It does not even grow at Simons Bay. Nowhere on the earth but just round this one mountain. The silver tree (*Leucadendron argenteum*) is one of the Proteaceæ, which natural order is characteristic of the flora of the Cape and South Australia, the genera being nearly equally divided between the two regions, and found scarcely anywhere else.

A few only are found in tropical Australia, in New Zealand, South America, and equatorial Asia. Another group of plants, the Restiaceæ, serve further to connect the Cape with Australia, and there are other marked alliances. The wide difference between the West and East Australian flora has been treated of by Sir Joseph Hooker, and the greater resemblance of the Western Australian flora to that of South Africa.

Sir Joseph Hooker thinks it probable, from botanical grounds, that Western Australia was connected with the Cape district by land at a time when it was severed from Eastern Australia.

The American Trade Revival.

Up to the present time the fears expressed that the great revival of trade in the United States should prove a "flash in the pan" must certainly be pronounced groundless. Our advices this week are full of remarkable statements as to the business actually in progress, and the most buoyant and cheerful anticipations as to the near and fairly distant future. Producers in all directions appear to have been literally taken by storm by the sudden inrush of orders, and to be absolutely unable to cope with the current requirements of the market. The upward wave is apparently in no sense local or confined to any particular area, but broad, general, and progressive. The East is not busier than the West, nor is the North less brisk than the South. From every leading business center the reports are alike hopeful and bristling with the records of actual sales.

Taking the trade reports of the *Iron Age* for September 4, we find abundant evidence of the plenitude of work and of the upward course of prices. General hardware is therein said to be "booming" in New York, and values were steadily growing stronger. Nails had sold largely, and it was an accepted conclusion that a further advance would be immediately adopted. The spoon manufacturers had just enhanced prices by decreasing discounts; the makers of vises, picks, mattocks, etc., had advanced prices about 5 per cent; horse and mule shoes had put up quotations to the extent of 25 cents per keg; wrought butt hinges had been advanced by some houses; the American Screw Company had declared a rise in coach screws, rules and levels had gone up; the Douglas Ax Company had increased prices 50 cents per dozen; and quite a host of other similar changes were in progress.

As regards American pig iron the market was strong, the demand being far in excess of the visible supply, and prices hardening. About 2,200 tons of Scotch had arrived at the port of New York in a week, and other large lots had been brought forward. At Philadelphia the market was still advancing, every description of iron being eagerly sought for, and only obtained at higher prices. There was not the slightest sign of a retrograde movement, and a leading importing house there reported sales of as much as 100,000 tons of pig iron in England on American account. In finished iron everything was active, and a magnificent fall trade was looked forward to.

In steel rails a large business had been done for deliveries in 1880, at as high as $50 per ton. Old rails were sought for at rates, which it was expected, would be reduced by large importations from Europe. From Pittsburg it was reported that the business done in August was larger than ever before in one month, and at prices which advanced almost as rapidly as in the war times. Pig makers were very firm and producers of Bessemer iron had "an excited and unsettled market." The two largest buyers in the vicinity were stated to have contracted for a good deal of hematite pig in Europe. The Western Iron Association had held another meeting, and had put up prices to a "two and a half dollar card," the mills having to refuse orders even at that enhanced rate. All the rail mills were sold up close for the year's production, and the market appeared utterly bare of old rails. In steel more was doing. From Chattanooga an excited and rapidly advancing market was reported, with good prospects, owing to the excellence of the crops in the locality. Boston communications spoke of an active demand for pig, with a constantly hardening tendency in prices. All kinds of manufactured iron were brisk, and galvanized kinds had been more than once raised. Steel, too, was more sought after, and at higher figures.

From Cincinnati the current reports were hopeful, with very light stocks and a strong market. At Baltimore trade ruled very active, with values firm and advancing. At Louisville the market was quite excited, most of the furnaces being sold forward for several months, and nobody having any stock. At Richmond there was a firm market, and prices were moving upward. From other quarters the same state of things was spoken of. Under such circumstances and conditions as are here briefly epitomized it is scarcely possible to doubt any longer that the revival is real and strong in the United States. That market is apparently far from able to supply its own wants. The surplus demand naturally and necessarily comes here. We have already experienced some of its first fruits. Within the past few weeks we have sold quantities of iron which are almost beyond belief to American buyers—probably in the aggregate over 150,000 tons. Our own markets are beginning to show signs of renewed vitality; indeed, as regards pig iron there is a clear rise. Our rail mills are fully engaged, and many of our other industries—the engineering branches, for instance—are better engaged. These are all good signs, and, although the harvest is against us, may possibly be taken as a far more rapid and more thorough revival of trade than most of us at present would pretend to predict. So mote it be!—*London Ironmonger.*

Building in New York.

There has been a marked increase in the number and value of the buildings constructed in this city during the past eight months over the corresponding period last year, The Superintendent of the Department of Buildings gives the statistics as follows: First eight months of 1879—Number of buildings constructed, 1,450; cost of construction, $16,351,512. First eight months of 1878—Number of buildings constructed, 1,128; cost of construction, $10,707,200. Increase in number of buildings constructed, 322; increase in cost of construction, $5,644,312.

Record of Great Fires.

History is full of accounts of the devastation caused by fire in the cities and towns of nearly every country of the civilized world. A record of these conflagrations, says the *Fireman's Journal*, cannot but be of interest.

In the year 798 London was almost entirely destroyed by fire, and again in 982 the greater part of the city burned. In 1086, all houses and churches from the East to the West gate burned. What is known as the "great fire" occurred in 1666. It began September 2, and continued three days, burning over 436 acres. Houses to the number of 13,200, including many public buildings, were destroyed; and six persons were killed. The loss was estimated at $50,000,000. In 1794, 600 houses burned, loss over $5,000,000; in 1834 the Houses of Parliament were destroyed; 1871, Tooley street wharves burned, entailing a loss of $10,000,000; in 1873, Alexandria Palace destroyed. The great fire at Edinburgh occurred in the year 1700. At Brest, France, in 1784, explosion and fire in a dockyard caused a loss of $5,000,000. Paris (Communist devastation), 1871, $160,000,000. A fire at Rome, in the year 64, lasted eight days, and ten of the fourteen wards of the city were destroyed. Venice, Italy, was almost wholly destroyed by fire in 1106, and in 1577 the greater part of the city was ruined by an explosion during a fire at the arsenal. Leipsic, Germany, in 1420, lost 400 houses; 1491, Dresden, Germany, destroyed. In 1811, forest fires in Tyrol destroyed 64 villages and hamlets. 1842, Hamburg, fire raged one hundred hours, May 5-7. During the fire the city was in a state of anarchy; 4,219 buildings destroyed, one fifth population homeless, and one hundred lives lost; total loss, $35,000,000. After the fire contributions from all Germany came in to help rebuild the city. At Copenhagen, in 1728, 1,650 houses burned; 1794, Royal Palace, with contents destroyed; 1795, 1,563 houses burned. At St. Petersburg, in 1736, 2,000 houses were burned; the great fire occurred in 1862, when the loss was $5,000,000. In 1752, at Moscow, 18,000 houses were burned. On September 14, 1812, the Russians fired the city to drive out Napoleon. The fire continued five days, and nine tenths of the city was destroyed. The number of houses burned was 30,800, and the loss was $150,000,000. At Constantinople, in 1729, a fire destroyed 12,000 houses and 7,000 persons. In 1745 there was a fire which lasted five days; January, 1750, 10,000 houses burned; April, same year, loss $10,000,000;

later, same year, 10,000 houses destroyed; 1751, 4,000 houses; 1756, 15,000 houses and 100 persons; years 1761, 1765, and 1767, other great fires; 1769, 1771, and 1778, great fires; 1782, fire burned three days, 10,000,000 houses and one hundred lives lost; February, same year, 600 houses; June, 7,000; 1784, 10,000 houses; 1791, between March and July, 32,000 houses burned, same number in 1795; 1799, in suburb of Para, 13,000 dwellings and many magnificent buildings destroyed; 1861, August 16, 12,000 houses and 3,000 shops in finest quarter were destroyed; 1818, August 13, fire destroyed several thousand houses; 1823, 6,000 houses; 1848, 500 houses, 2,000 shops, loss estimated $15,000,000; 1865, great fire destroyed 2,800 houses and public buildings, 22,000 persons left homeless; 1870, June 5, the suburb of Para, occupied by the foreign population and native Christians, swept by a fire which destroyed over 7,000 buildings, many of them among the best in the city, including the residence of the foreign legations; loss estimated at nearly $25,000,000. Scutari, Greece, 1797, 3,000 houses burned. Smyrna, Greece, 1763, 2,600 houses consumed, loss $1,000,000; 1772, 6,000 houses; 1796, 4,000 shops; 1841, 12,000 houses. Yeddo, Japan, 1872, 6 square miles burned over, 20,000 persons homeless; 1873, 10,000 houses destroyed.

At Boston, Mass., 1679, all the warehouses, 80 dwellings, and vessels in the dockyards, were consumed, loss $1,000,000; 1760, fire caused loss of $500,000; 1787, 100 buildings destroyed; 1794, 96 buildings burned; 1872, great fire November 9 and 10, the richest part of city destroyed, an area of 65 acres burned over, 776 granite and brick buildings consumed, loss $75,000,000. Charleston, S. C., 1778, fire caused the loss of $500,000; 1796, 300 houses burned; 1838, one half of city burned, loss $3,000,000. Savannah, Ga., 463 buildings, loss $4,000,000. New York, 1835, 530 buildings in business center of city destroyed, 52 acres burned over, loss $15,000,000; 1845, 300 business blocks, 35 persons killed, loss $7,500,000. Pittsburg, 1845, 300 buildings destroyed, loss $10,000,000. Albany, 1848, 600 houses burned, loss $3,000,000. St. Louis, May 17, 1849, 15 blocks, 23 steamboats, loss $3,000,000; May 4, 1851, three quarters of the city burned, 2,500 buildings, loss $11,000,000; same year, 600 houses, loss $3,000,000. Philadelphia, 1850, July 9, 400 buildings burned, 30 lives lost, loss $7,000,000; 1865, 50 buildings burned, 20 persons killed, loss $500,000. Washington, 1851, part of Capitol and whole of Congressional library burned. San Francisco, May 4 and 5, 1851, 2,500 buildings and a number of persons burned, more than three fourths of city destroyed, loss $10,000,000; June, same year, 500 buildings, loss estimated at $3,000,000. Chicago, 1857, 14 lives, $500,000; 1859, September 15, $500,000; 1866, August 10 and September 18, $500,000 each; 1871, the greatest fire of modern times, October 8 to 10, 2,124 acres, or 3⅓ square miles, burned over in the very heart of the city, 250 lives lost, 98,500 persons made homeless, and 17,430 buildings, one third in number and one half in value of buildings in city consumed, loss estimated at $190,000,000. Troy, N. Y., 1862, nearly destroyed by fire. Portland, Me., 1866, great fire July 4, one half of the city burned, 50 buildings blown up to stop the progress of the fire, loss $11,000,000. Quebec, 1815–16, $1,000,000; 1845, May 28, 1,650 houses burned, one third population made homeless, loss $3,000,000; another fire June 28, 1,300 dwellings, 6,000 persons made homeless, loss $1,000,000; 1866, 2,500 houses and 17 churches in French quarter burned. St. John, N. B., 1837, January 13, 115 houses and nearly all the business part of the city burned, loss $5,000,000; 1877, June 21, 200 acres burned over, 1,650 dwellings, 18 lives lost, total pecuniary loss $12,500,000. St. Johns, Newfoundland, 1846, loss $5,000,000. Montreal, 1850, June 7, 200 houses in finest part of city burned; 1852, July 9, 1,200 houses burned, 10,000 persons destitute, loss $5,000,000. Santiago, South America, fire in the Jesuit church, 2,000 persons perished.

Improved Electric Candle.

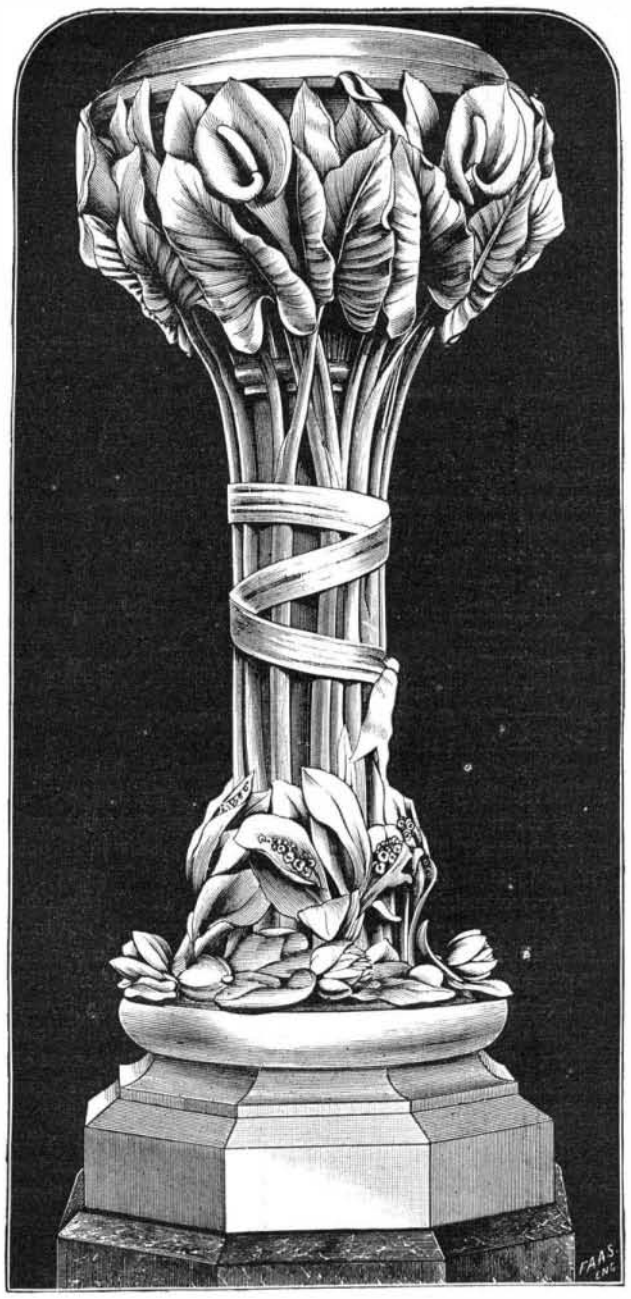
An improved form of electric candle has been produced by Mr. S. Cohné, of London, for which the following advantages are claimed: Up to the present time all electric candles in use have been made from pure carbon or carbon mixed with other substances, such, for example, as kaolin or plaster of Paris, all which have the great disadvantage of burning too quickly away, and producing in a greater or less degree a flickering light. Such candles, therefore, require controlling mechanism to regulate their distance from each other. Mr. Cohné's invention consists in making or forming a candle of ultramarine, or the substances which when united together form or produce ultramarine. The ultramarine may be green, blue, or of any other color in which it is produced. It may be either used in its pure state or mixed with carbon, kaolin, plaster of Paris, molasses, or with any metal reduced to powder so as to be in a finely divided state. The metal preferred is copper, and it is ultramarine, carbon, powdered copper, and molasses that the patentee employs. To about four parts of carbon he adds one part of ultramarine and one part of the finely divided metal, and as much molasses as will, when mixed with the other materials, be sufficient to form the whole into a paste which can be moulded or otherwise formed into the shape desired.

The candle thus formed is dried and heated for a sufficient time by fire, by whose action all the moisture is evaporated, the sulphur is burned away, and the molasses, as well as all other organic matter, becomes carbonized. The patentee does not confine himself to the exact proportions above named, and it will be understood that the mixture alluded to is only one of those in which the candle may be made. When these candles are put into use, the resistance and the current in the arc are to a very great extent less varying, and controlling mechanism to regulate the distance is nearly unnecessary, because the candle is consumed very slowly in comparison to those heretofore in use.

BAPTISMAL FONT.

The marble baptismal font shown in the engraving is from the establishment of Messrs. Struthers & Sons, Philadelphia. In simplicity and grace, in purity of sentiment and harmonious blending of ornament, it is comparable with anything we have seen.

From a plain octagonal base rises a slender, round shaft, on which rests a circular basin, with receding mouldings lessening toward the rim. Around the foot of the shaft are strewn numbers of pond lilies, their round, flat leaves disposed on a horizontal plane, while here and there among the group are sprays of delicate lilies of the valley, the blossoms half hidden in their sheltering sheath-like leaf. Rising above these, almost to the rim of the basin, is a sheaf of beautiful white water lilies, their long, smooth stems bound to the shaft of the column by a ribbon band, their broad leaves and graceful flowers encircling and completely hiding the lower portion of the basin.



MARBLE BAPTISMAL FONT.

The Influence of Temper on Health.

Our English contemporary, *Capital and Labor*, which is generally correct in its assertions, thinks that, while excessive labor, exposure to wet and cold, deprivation of sufficient quantities of necessary and wholesome food, habitual bad lodging, sloth, and intemperance, are all deadly enemies to human life, none of them are so bad as violent and ungoverned passions. Men and women have survived all the former, says the writer, and at last reached an extreme old age; but it may be safely doubted whether a single instance can be found of a man of violent and irascible temper, habitually subject to storms of ungovernable passion, who has arrived at a very advanced period of life. It is, therefore, a matter of the highest importance to every one desirous of preserving "a sound mind in a sound body," to have a special care, amid all the vicissitudes and trials of life, to maintain a quiet possession of his own spirit.

Powerful Guns.

Exceptionally satisfactory results have been obtained at the proof butts in the government marshes, adjoining the Royal Arsenal, Woolwich, with one of the 80 ton guns constructed for H. M. S. Inflexible. The gun has just been increased from 15½ inches to 16 inches, and has had its chamber enlarged for the effectual and deliberate consumption of the comparatively slow gunpowder, which experience has proved to be of the greatest service in enormous charges, at the same time that the powder was carefully compounded, and particular attention paid to the air spacing of the cartridge. At the first round, which was simply a warmer, with 428 lb. of powder, the velocity of the projectile was 1,603 feet per second, the projectiles weighing rather above 1,709 lb. The full charge of 445 lb. of powder was then fired, and the electric recording instrument marked a velocity at muzzle of 1,657 feet per second, or a fraction of 9 feet in excess of the German gun's velocity under almost precisely similar conditions. The officials engaged in the trial, to satisfy any doubt which might exist as to the accuracy of the test, again had the gun loaded exactly as before, and again the speed of the great bolt was given in the instrument room as 1,657 feet per second, which would enable the projectile to pierce and destroy an enemy's vessel coated with 32 inches of iron plating. It will be remembered that at Meppen, firing a projectile of 1,712 lb. with a powder charge of 451 lb., Krupp registered a muzzle velocity of 1,648 feet per second, which is calculated to be equivalent to an energy of 32,242 foot tons or the penetration of 32 inches of iron armor. The three other 80-ton guns of the Inflexible have to be tried under similar conditions as the one lately tested.

There seems to be no intention of submitting a tube of Sir Joseph Whitworth's so-called compressed steel to the New Gun Committee for consideration and report. Fresh from his recent victory in the United States gun competition, Sir William Palliser proposes to bore out the steel tube of a large Woolwich gun to relieve the strain on the casing, and then to insert a very long loose coiled wrought iron barrel on his well known plan. Notwithstanding the fact that no burst has taken place out of two thousand such guns which are in constant use in the British Empire and the United States, and that the Director of Ordnance of the United States Navy has proved that his guns can be fired with large charges without affecting their casings, it has been decided, as one of our daily contemporaries is informed, that nothing from Sir William Palliser shall be permitted to appear before the new Gun Committee for their consideration and report.

The Italian Government have just ordered eight more 100-ton guns to be made by Sir William Armstrong & Co. They are to be breech-loaders, and as there will be no departure from the coil system in the construction of these weapons, the question will be brought to a practical issue whether large breech-loading guns can be made on the coil system to compete with the steel breech-loaders of Herr Krupp. Eight 100-ton guns represent a tremendous armament. Each shot will start from the powder chamber with a pressure of about 5,000 tons at its rear, and the energy stored up in the projectile as it leaves the muzzle will be equal to the raising of 44,000 tons a foot high. The penetrating force will be equal to 3 feet of armor at close quarters, with proportionate reductions according to distance. There will be eight 100-ton muzzle-loaders for the armament of the Duilio and Dandolo, those vessels carrying four each, and there will be eight breech-loaders for the Italia and Lepanto. The muzzle-loaders already supplied are characterized, like the Krupp guns, by great length of bore, and, of course, this feature will be maintained, if not further developed, in the breech-loaders. While the Woolwich 80-ton gun has a bore only 18 calibers long, that of the Armstrong 100-ton gun is between 20 and 21 calibers in length; but even the 80-ton gun is proportionately longer than the Woolwich 38-ton gun, the latter having a bore of only 16 calibers.

The four 100-ton muzzle-loading guns, made by Sir William Armstrong for the Italian Government, but purchased by the British Government out of the vote of six millions, are destined to be employed for the coast fortifications, the localities specified being Malta and Gibraltar.—*The Engineer.*

The Dominion Exhibition.

The Dominion Exhibition at Ottawa was closed September 27, and though a success as an exhibition, it was financially a failure. The total gate receipts were only a little over $9,000—less than half as much as was taken in at the Toronto fair last year.

ERRATUM.—In the description of the performance of Mr. Edison's electric generator last week, the figures showing the number of lights and the power required to produce them were omitted from a portion of the edition. The clause referring to these points should read: It requires but five horse power to drive the machine, and the current generated is sufficient to produce forty lights of sixteen candle power each. Mr. Edison has since informed us that the generator may be forced to do much more.