

**LIGHTING GAS BY ELECTRICITY**—Saml. Gardiner, of New York City: I do not confine myself to the particular method described of accomplishing my object. But I claim, broadly, turning on or shutting off inflammable gas by degrees or gradually through the agency of electricity, for such purposes as before alluded to.

[This improvement will be found described in another column.]

**VEGETABLE CUTTERS**—Wm. Robinson, of Highgate, Vt.: I claim the employment of hooked cutters, running at different velocities on parallel cylinders, the whole being arranged and combined in the manner and for the purposes set forth.

RE-ISSUE

**AUTOMATIC GRAIN WEIGHING MACHINE**—Rufus Porter, of Washington, D. C. Patent dated May 5, 1857: I claim, first, The combination of the tripping rods, S, with the valve plate, N, and knuckle braces, i and j, whereby the movement of the valve gate, L (which is operated by means of scale beams, P) causes the contents of the buckets, B, to be discharged alternately, as set forth.

Second, The knuckle braces, i and j, in combination with the trap doors, m, whereby the latter are spontaneously closed and fastened immediately after the grain is discharged, as set forth.

Third, The balance beams, F, with horns, I, in combination with valve plate, N, and catch levers, T, so arranged that the weight of grain in one bucket changes the position of the valve gate, so as to turn a portion of the current of the grain into the other bucket before the first bucket receives the quantity the second horn trips the catch, and thereby turns the balance of the current of the grain into the other bucket as set forth.

ADDITIONAL IMPROVEMENT.

**SKATES**—Ferdinand Klein, of Newark, N. J. Patent dated April 1, 1856: I claim casting in one piece the bar, A, heel plate, B, and loop, e', having a point, g, which assists to support the bar, A.

Secondly, I claim forming the obtuse angles, a b c, and a' b' c', of the bar, A, to prevent the stock or wood of the skate from separating, substantially as described and shown in the drawings.

DESIGNS.

**TRADE MARKS ON FLOW SPRINGS, &c.**—James D. Wolloughby, of Pleasant Hill, Pa.

**LOCK FRONTS**—Elias Ingraham, of Bristol, Conn.

**COOKING STOVE**—Jacob Steffe, James Horton, and John Currie, of Philadelphia, Pa., assignors to M. W. Jackson and W. H. Wooden, of Berwick, Pa.

NOTE.—The above List of Claims indicates that the times have not materially affected inventive genius, and why should they? On the contrary, we have noticed in years gone by, that when trade generally was most depressed, and mechanics were out of employment, and consequently had the smallest incomes, then it was that the business of the Patent Office was the greatest, thus proving the old adage that "Necessity is the mother of Invention." No man knows what he can accomplish until placed in some emergency, out of which he is obliged to work his way. It is so with many who have recently secured patents. They did not know they had the talent for inventing until necessity compelled them to do something for a livelihood, and as they were out of employment, they fortunately took the advice they had often read in our columns, and made an invention, got it patented, sold rights, and are now in a position to snap their fingers at the hard times.

In the foregoing list, we recognize the names of TWENTY-THREE—more than one-third of the entire number—whose patents were secured through the Scientific American Patent Agency.

**Drying Bricks by Artificial Heat.**

**MESSERS. EDITORS**—As every one now looks to the SCIENTIFIC AMERICAN for improvements and discoveries in art or science, I will give you the result of a series of experiments which I have just completed to dispense with the usual method of drying bricks by exposure to the sun—substituting in its stead a proper application of artificial heat. The process is so simple that it will ere long, I think, revolutionize the business, at least in the large cities, or where there is a market for a large quantity.

Imagine a tunnel one hundred and fifty feet long, four feet wide and five feet high, fitted with a railway and train of cars extending its entire length. The cars descend by their own gravity, having declination sufficient to give motion with a slight exertion of force. Near the mouth or entrance is a smoke stack, communicating through the floor, and near the opposite end or exit is a furnace. As the bricks are molded they are placed on the cars, each containing 180 bricks, which, when filled, are shoved into the tunnel, and thus push each other along, requiring seven or eight hours to make the passage. I have taken them out perfectly sound, and as dry as if they had been exposed to the sun for a week.

It will be seen that this method meets all the requirements. The stack being at one end and the fire at the other, a strong current of air is created running the entire length of the tunnel. The bricks first need the air rather cool—if otherwise, they would crack—and as they advance, the moisture is liberated and carried off. In two or three hours, they begin to feel the heat, but they are then partially dry, and able to bear it, and so on until they emerge from the tunnel perfectly dry, and are borne off to the kiln.

Every brickmaker will appreciate the importance of this. The business may now be carried on under cover, and free from the vic-

issitudes of weather. Instead of being limited to five or six months in the year, ten or eleven may be secured. There is nothing to prevent operations on this day (December 15), or, in fact, whenever the temperature is not down to the freezing point. This, of course, requires the molding to be done by a machine, as the cold clay cannot be handled.

Drying floors being no longer needed, brickworks may now be established in many a spot hitherto impracticable, as you only require room for the kilns, and a shed one hundred feet long. About twenty feet of the tunnel must be of brick; the remainder, with the smoke-stack, may be of lath and plaster, or any other cheap material. The cost of a tunnel, with the cars, &c., to turn out 25,000 bricks per day will be about \$1200 or \$1500, which is much less than the floors, sheds and other requisites of a yard in the present mode.

I have here given the mere outlines. Those wishing further information can address me by mail.

FRANCIS H. SMITH, Baltimore, Md.

[If this improvement secures all the objects specified by our correspondent, it is certainly of great importance to brickmakers. During the early part of last summer, the weather continued cold and wet, preventing many of our brick manufacturers from carrying on their usual amount of business. In one case known to us, the weather disabled an extensive manufacturer from fulfilling a large contract, and he was thereby subjected to a considerable loss. Had he been in possession of the above information furnished by Mr. Smith, he would have been enabled to meet his engagements with profit instead of loss to himself and others.]

**Eclectic.**

This word is now in almost daily use, and is found on the title page of many works professing to have for their aim the advancement of true knowledge and civilization. It is derived from a Greek word which was applied to a school of philosophers who endeavored to select from the systems of various schools those doctrines which alone are true, and to present them in the form of an entire whole, calling them eclectic principles.

Pluto and Aristotle may be said to have been eclectic in their views, but the chief of ancient eclectics lived under the Roman empire, the most celebrated of them being Epictetus, who lived in the year 60, A. D., and Plutarch, who wrote a series of biographies of great men. The most striking example of a philosopher of this school in later days is M. Victor Cousin, a French professor of the mental sciences.

At the present day, when physical science has made such vast strides in the onward march of truth, it has been necessary for eclecticism to step in and act as a kind of check to prevent us from rushing into false theorizing and wild speculation; and in no branch is this more necessary than in medicine, where every new quackery which starts up around us finds some believers. It is therefore requisite for the well-being of the body, that calm and cautious men should examine the facts supporting the system thoroughly, so that any grains of truth there may be in it may be used for the good of the world, and all the chaff may be blown to the winds.

**Occult Science.**

The age of research and investigation in which we live has entirely done away with the chimeras of the ancient alchemists, astrologists and others of the same class, except amongst the most ignorant and degraded of the community. Yet we must not hold them in disrespect, as they were the germs of two of the noblest of our modern fields of inquiry, namely, chemistry and astronomy.

**Monoliths.**

This is a name given to a monument or pillar composed of a single stone. They were common in ancient times, the obelisk of Luxor now in Paris being an illustration.

**Painting on Glass.**

There is a common opinion that the ancient art of glass-painting is completely lost. This, however, is so far from being true, that it is now carried to a much higher degree of perfection than ever before, except in one particular color, and even that is very nearly approached to. We can blend the colors, and produce the effects of light and shadow, which the ancients could not do, by harmonizing and mixing the colors in such a manner, and fixing by properly enameling and burning them, that they shall afterwards become just as permanent as those of the ancients, with the additional advantage of superior art. In modern times, glass-painting has been carried to the greatest perfection at Zurich. The process is effected chiefly by colors derived from metals. The colors are laid on by fluxes, as soft glass and easily vitrified bodies. The colors are affixed by annealing the metals to the glass.

**Recent Patented Improvements.**

The following inventions have been patented this week, as will be found by referring to our List of Claims on another page:—

**SNOW PLOW**.—Andrew Hotchkiss, of Sharon Valley, Conn., has invented a new plow for excavating snow. It can be used as an ordinary snow plow in light snows, and when a deep snow occurs, or the snow accumulates in a cutting, one of these plows attached to the front of the locomotive will act as an excavator, and dig the snow away in blocks.

**POTATO DIGGER**.—A new potato digger has been invented by Jacob E. Hardenburgh, of Fultonville, N. Y., which consists in the combination of an adjustable share and grating, with horizontal and revolving arms, on a suitable framing and wheels, arranged relatively with each other, to dig the potatoes and throw them in ridges on the surface of the ground.

**GALVANIC GAS LIGHTER**.—This apparatus (which will be found fully described and illustrated on page 320, Vol. XII, SCIENTIFIC AMERICAN) is the invention of S. Gardiner, Jr., of New York City. It consists in placing a fine coil of platinum wire over the burner, which is made red-hot by the passage of the electric force, and the gas impinging on it becomes ignited. By this means any number of burners may be turned on and lighted instantaneously. It is a valuable invention.

**EXTENSION TABLE**.—This table has slides of sheet metal plate, which are bent so as to form tubes, each of which has externally a dovetail tongue on one side, and an inversely corresponding groove on the inner side, so that the tongue of one slide will fit into the groove of the other. By this means the perfect working of the slides is obtained, and the table is rendered stiff and firm; it is not likely to get out of repair. It is the invention of Edwin A. Curley, of Westport, Conn.

**CUTTING SLOTS FOR STILES IN WASHBOARDS**.—O. L. Reynolds, of Dover, N. H., assignor to Hiram F. Snow, of the same place, has invented an improved machine for cutting zig-zag slots in the stiles or hill pieces of washboards, to receive the ends of the corrugated sheet metal plate. It consists in having a wheel provided with a zig-zag cutting edge placed on a shaft over a bed having a longitudinal groove made in it to receive the stiles or side pieces. The wheel, as it is turned, cuts the zig-zag curves or slots in the stiles.

**SAW-SET**.—The class to which this saw-set belongs is that in which a punch is employed to bend or give the set to the teeth of saws. The invention consists in attaching the punch to a swinging or vibrating bar, which is operated by a cam and spring, and using in connection with it a beveled inclined bed and set screws, whereby a greater or less set may be given to the saw as desired, and the implement may be applied to the saw with the greatest facility, thus setting saws in an expeditious and perfect manner. It is the invention of Edward Marshall, of Brooklyn, N. Y.

**IMPROVEMENT IN BELTING**.—The object of this invention is to prevent the slipping of belts on small pulleys when driven by a larger one. It consists in leading a belt from the large pulley round the back, to and round an intermediate pulley on a third shaft; from this intermediate pulley the belt is carried back again around the small pulley to the large one. By this arrangement the smallest pulley can be driven by a large one without any danger of the belt slipping. The arrangement is the invention of Benjamin Chester, of this city, who has assigned it to V. H. Bur-nap, of Lowell, Mass.

**CUTTING METAL TUBES**.—This invention consists in having a metal collar provided at one end with a flanch, which fits in a recess in a circular stock fitting loosely on the collar. The opposite end of the collar has a ring secured upon it, by a screw passing through them both, and pressing against the tube to be cut, which is fitted inside the collar. The stock is fitted and works between the flanch and ring, and a cutting tool is placed in a socket attached to the stock. The tube is cut by rotating the stock on the collar, the cutter being fed to its work by a screw worked by hand. It is especially applicable to cutting gas tubes, and is the invention of T. J. Lloyd, of Pottsville, Pa.

**CASTING HINGES**.—The object of this invention is to produce a hinge in which all the advantages of the best drilled and wired hinges are obtained, and which is, in some respects, superior, at a cost scarcely exceeding that of the pivot hinge, which is formed by casting the two parts together, with teats and corresponding recesses at the center of the joint. The invention consists in the introduction of a wrought iron pin, or pins, into the center of the joint, by the molding and casting process, in such a manner that they extend through the knuckle or knuckles of one leaf of the hinge, and protrude so as to form pivots entering into, but not passing through, the knuckles of the other half of the hinge. It is the invention of Nicholas A. Fenner, of Providence, R. I., and assigned to the N. E. Butt Co., of this city.

**CIRCULAR SAW MACHINE**.—This invention consists in attaching the saw guides to a forked or V-shaped bar, which is fastened to a collar on the saw arbor, and having the pillar blocks which receive the bearings of the arbor pivoted to the frame; the bearings being fitted in the pillar blocks in a peculiar way, and the outermost pillar block and bearing being rendered adjustable longitudinally, whereby a longitudinal play or movement is allowed the saw arbor, and consequently a lateral play is allowed the saw, so that it may conform or give to the spring of the log; and the "dip" of the saw is regulated, or more or less "clearance" can be given it, as may be required. It is the invention of A. C. Martin and Mahlan M. Wombagh, of Cincinnati, Ohio, who have assigned it to A. C. Martin and R. Ashcraft, of the same place.

**CASTING CAR WHEELS**.—A. A. Needham, of Rockford, Ill., has invented a new method of performing this operation, by which he overcomes the difficulty hitherto attending the casting of perfect car wheels, in consequence of the unequal cooling of them, produced by casting with a chill, in order to harden the periphery. Wheels cast with a chill are liable, from the cause above alluded to, to crack, and the iron prevents it from assuming that crystalline structure of cast iron which is best adapted for strength. The invention consists in using two different kinds of iron, hard and soft, and having the mold placed within a revolving flask, the melted hard iron being first poured into the mold, which, by centrifugal force, will be pressed hard to the edge of the mold, thus forming a periphery of hard iron; the softer iron can be afterwards poured into the mold, to form the body of the wheel, and the whole being allowed to cool gradually, the wheel will contract equally throughout its mass.