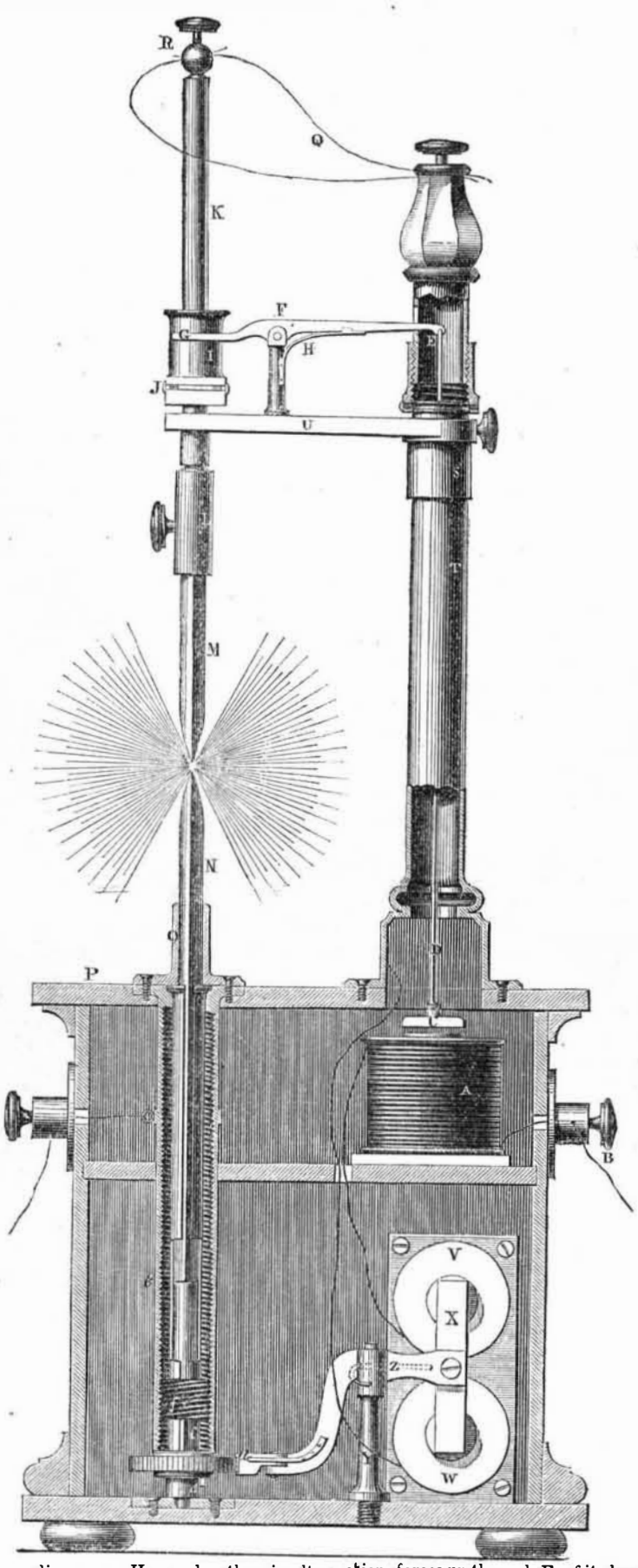
NEW INVENTIONS.

Electrical Illumination.

On the first of November, 1852, a patent was granted to Dr. Joseph J, W. Watson and Thomas Slater, an ingenious mechanic of London, for improvements in galvanic batterias for producing electrical illumination, and for the manner of producing valuable chemical products by the said batteries. As the English patents are not enrolled for six months after they are granted, it was not until the first of last June that the full specification was made out. Wonderful statements respecting the value of the improvements found their way from time to time in the papers, and some of these are noticed in our columns. More recently Dr. Watson has published a splendid book on the subject in London, one that greatly reminds a person of the old illuminated manuscripts, with its blue and red initial words to its paragraphs. This is to carry out the description of the invention, in uniformity with its nature, which is the production of pigments of various colors in the batteries, which are employed to produce the electric currents.

The annexed engraving is a side elevation, in section, of Dr. Watson's electric lamp, arranged for the table and domestic use.



In this lamp an electro-magnet, A, is fixed in the base, and rendered magnetic by a wire which enters at B—the other end of the coil of the magnet being in connection with the lamp's base. The armature, C, of the magnet is attached to the lower end of the rod, D, which again is connected at its upper end with the longer arm, E, of an overhead lever. This lever works on a fixed center, F, and its opposite arm terminates in a fork, G, whilst a slight blade-spring, H, serves to keep the end, E, of the lever constantly elevated when the magnet is not in action. The fork, G, embraces a collar, I, consisting of two semi-cylindrical pieces of brass, hinged to each other at their base, J, and made to grasp the vertical spindle, K, by the ascending action of the fork upon the conical sides of the collar. The spindle, K, is fitted with a socket, L, in which is a tightened screw for holding the upper electrode, M; whilst the lower electrode, N, is inserted in the stationary socket, O, on the base beneath. This socket is fitted into the top of the main stand, P, which also carries a binding screw, for connection with one pole of the battery. The dark parts of the figure represent the insulated points of the apparatus. Two flexible wires, Q, connect the top of the lamp with the upper electrode, through the binding screw, R, in the top of the spindle, K, and this completes the battery connection as far as regards the actual light apparatus.

As the correct working of the lamp depends on the adjustment of the arc, or striking distance between the poles, Dr. Watson has introduced the apparatus indicated at S, consisting of a collar piece, or boss, capable of turning round on a shoulder on the upper portion of the pillar, T, through which pillar the rod, D, of the armature, C, is passed. This boss is formed internally with a screw-thread working upon a corresponding thread on a tubular piece within, so that, on turning the boss, the screw action elevates the tube, and the latter carries up the bracket, U, and with it the lever, E G. Thus, by turning this boss, S, in either direction, the armature, C, suspended from the lever, is made to approach to, or recede from, the poles, and thus diminish or increase the inductive power; and the portion of the pillar above the boss being slotted, to allow the lever to pass through, the lever's play is restrained within certain determined limits. The action of the lower pole of the lamp is this:—The current which induces the magnetic power in the magnet, A, also brings into action the electro-magnet, V W, before it passes to the general body of the lamp. The electro-magnet, W, attracts the armature, X, which is attached to a curved lever, capable of horizontal motion to the stud pillar, Y, but restrained from connection with the magnet, whilst induction is not going on, by the spring, Z. At the opposite end of this bent lever is a spring-catch, *a*, gearing with a ratchet-wheel, *b*, which it turns, on being acted upon by the magnetic induction. This ratchet-wheel, *b*, is fast on the end of a slotted tubular piece, *c*, which works in a footstep, *d*, in the base of the stand. This tubular piec *ec*, passes up the centre of the fized external tube, *e*, which has an internal screw-thread upon it, and is therefore, in reality, a long nut. In this nut is fitted the short externally screwed piece, *f*, which is entered upon the tubular spindle, *c*, and connected with it by a feather projecting into its groove. In this way, as the ratchet, *b*, is turned, the short screw, *f*, is compelled to traverse along its internal screw-thread, and a propeller piece, *g*, on the front of the screw, *f*, pushes forward the electrode, N, through the tube, *c*, in which it is entered, and through the socket, O.

Thus the action resulting from the magnetic operation of the magnet, A, induces a similar consequence in the action of the magnet, W, with the exception that, in the latter case, the movement is an ascending, instead of a descending one. Hence, by the simultaneous action of both poles, the center of the light is constantly kept at the same level, so that it will unvaryingly correspond with the focal line of a reflector. In the light-action of the lamp itself, the electric current, in passing through the magnet, A, attracts the armature, B, thereby drawing down the end, E, of the over-head lever, and elevating the collar, I, and spindle, K; and the electrodes are thus retained at a proper distance asunder, so long as a sufficient amount of attraction exists between the magnet and armature to keep the latter down. Should any non-conducting matter obstruct the passage of the electricity through the arc, the induction of the magnet at once ceases, and the spring, H, coming into action, forces up the end, E, of its lever, causing the opposite end to relax its grasp upon the collar, I. The spindle, K, then necessarily slides downwards, and re-establishes contact between the electrodes, the requisite arc being instantly re-formed by the attraction of the armature, as before.

Many electrical lights have been brought before the public; our readers have not forgotten those of "Staite" and of "Paine," which made no small amount of noise, for a time, in both our own and other countries. The electric light is nothing new, and was produced frequently by Sir Humphrey Davy in his lectures. It differs from all other artificial lights, inasmuch as it closely resembles the light of the sun. This is produced simply by the combustion of two pieces of charcoal in contact with the poles of a galvanic battery; these carbon points are named "electrodes." When they are placed in the line of a battery wire, they are first to be brought into actual contact and then gradually separated, when a brilliant stream of light is given out. When the light has been kept up for a few moments, a transfer of particles takes place from one charcoal point to the other, and after a while a cavity is formed in the one corresponding to the convexity of the other. The gradual combustion of the transparent particles increases the distance through which the electric current has to pass, and as the power of the current is limited to the strength of tha battery, the light is extinguished when the hiatus preponderates. If the poles remain at a uniform distance, it is also obvious the steadiness will be vitiated. In none of the electric apparatus for light, heretofore proposed, was this difficulty overcome until this lamp was constructed. By this lamp the electric current is made to regulate itself, namely, by the action of the electro-magnet, and in this respect this invention is a very important improvement over previous electric lamps, which regulated the distance between the points, not by the electric current, the exponent of the light power, but by clock work.

Improved Gate.

W. T. Merritt, of Hart's Village, N. Y., has taken measures to secure a patent for an improved method of operating gates. This is an improvement relating to those gates which are raised up and down by a driver without leaving his seat in a carriage or wagon, and is adapted to make them work better, and also to prevent a casual movement in a gate of this kind. The improvement relates to certain devices for accomplishing the objects mentioned. Why are not such gates placed on all the railroad crossings? They appear to us to be the very kind required for such situations.

Steam Boilers.

W. E. Bird, of Cahawba, Ala., has invented an improved steam boiler, for which he has taken measures to secure a patent. The boiler is composed of cylinders or tubes arranged in layers or tiers having return flues passing through them and connected with a fire chamber. The flues of the lower tubes or cylinders terminate in a trunk or chest with hollow bars, through which the smoke passes to the smoke chamber. The flues of the upper cylinders communicate directly with the smoke chamber.

Improved Cultivator.

An improved Cultivator has been invented by Nathan Razey, of Perry, Ill. A series of knives or cutters are placed vertically in a shaft, the knives being parallel with the shaft and somewhat curved transversely, so that as the earth is plowed and pulverized and all the weeds are completely freed from the soil. Measures have been taken to secure a patent.

Railroad Frogs.

John Cornelius, of Chicago, Ill, has invented an improved method of constructing railroad frogs, for which he has taken measures to secure a patent. The invention consists in forming continuous rails on the parts of the track where frogs or V rails are employed, by means of a spring rail or rails placed on one or both sides of the frog.

Making Palliasses.

A useful machine for making palliasses, has been invented by James Pigot, of Brooklyn, N. Y., who has taken measures to secure a patent. The machine consists of an oblong frame and box, and is made adjustable, so as to make palliasses of different lengths and thicknesses.

Improved Washing Machine.

J. R. Morrison, of Springfield, Ohio, has invented a new and improved washing machine for which he has taken measures to secure a patent. In this machine the wash-board has a reciprocating motion between spring roller frames arranged in a peculiar manner.

The King of Clippers, McKay's mammoth ship, at Boston, of 4,000 tons, will probably be launched about the 1st of October.