

ELECTRIC BREVITIES.

DIVISION OF THE ELECTRIC LIGHT.—The mode in which this is effected is by parting a large wire into numerous branches, each branch of the same length and conducting power, and receiving an equal proportion of the current. The branches are further sub-divided, and the supply of the lateral stems similarly regulated. In practice, Mr. Edison will make use of two large main wires of copper, one for the outflow of the current from the machines, the other for its return. The mains will not be united at the outer ends. The positive wires will throw out a branch into each building it passes which takes the electric light. This branch will return to the negative main, thus completing the circuit. It is expected that the current can thus be sub-divided any number of times. The mains are to be supplied with a deluge of electricity, if the expression may be allowed, generated by magnetic machines, built for quantity and not for intensity, and it is expected that each building will receive its proportional share of the current. A sub-division of the current has been patented, by which the lights are placed in branch circuits, running across from the positive to the negative conductor; any number which the machine will support may be used and governed by switches.

A NEW DETECTIVE.—A gentleman living near Calcutta has discovered a new practical use for the microphone, which promises to render it useful in the detection of crime. Having for some time missed oil from his godown, he fixed up a microphone near the oil cans, carrying the wire up-stairs to his bedroom, and after the house had been closed for the night, set up to await the result. He was not long waiting before he heard the clinking of bottles, followed by the gurgling sound of liquid being poured from one receptacle to another. Hastening down he caught his bearer in *flagrante delicto*, filling small bottles with oil for easy conveyance from the premises.

COLOR OF THE ELECTRIC LIGHT.—By the combination of the suitable chemicals during the manufacture of the carbons, or by saturation afterward, almost any colored tint may be obtained. The natural violet rays are neutralized by the addition of a few grains in each carbon of chloride of sodium, producing a yellow tint like the sunlight. Magnesia produces a very white light, and is well adapted to photography. A mixture of arsenic, on the contrary, produces a light almost devoid of chemical effect. Various proto-salts and sulphates of the metals may be so combined as to produce almost any desired color.

THE ELECTRIC LIGHT PUT OUT.—Several American manufacturers who had introduced the electric light into their works, have withdrawn it, owing to the intermittent character of the light used, thus injuriously affecting the optic nerves of the workmen, interfering with a steady gaze. This intermission is not unfrequently due to the engine employed for working the generating machine being employed for other operations, and is not a necessary feature of electric lighting.

HOW EDISON'S LIGHT IS PRODUCED.—The light is produced by incandescence. The conductor, which is made incandescent by the electrical current passing through it, is a small, curiously shaped apparatus, consisting of a high alloy of platinum and iridium, which can not be melted under 5,000 degrees Fahrenheit. A sufficient quantity of this metal is placed in each burner to give a light equal to that of a gas jet.

EDISON'S CLAIM TO AN ENGLISH PATENT SECURED.—The British Commissioners of Patents have decided favorably on Mr. Edison's claim to a patent for his mode of producing, sub-dividing, and distributing the electric light.

WIREBOUND SHEAVES AND THE MILLERS.—The millers of the Western States of America have set themselves against the use of wire-binding reaping machines on the ground that the wire gets into the flour and offal, and injures the milling machinery. The Minnesota millers have agreed not to buy wheat that has been bound with wire, except at a reduction of 10 cents per bushel. As nearly all the self-binding reapers of America bind with wire, this proposed action of the millers is a serious one for the farmers, and for the makers of the American sheaf-binding reaping machines. It is doubtful, however, whether they will have power to carry it into effect. No string-binder has yet been uninterruptedly successful in ordinary field use, though two or three are now before the public, and will probably be perfected after another harvest.

TO CAST BRASS SOLID.—The metal should not be run any hotter than is necessary to insure sharp casting. The most probable cause of the honey-combings of castings is that the air can not get out of the way; and there ought to be proper vents made for it from the highest parts of the mold; the metal should be run in near or at the bottom of the mold. If about one pound of lead be added to every 16 pounds of old brass, when just at the melting point, solid good brasses will be the result. In melting old brass, the zinc, or lead, contained in it (when fluid) oxidizes freely, consequently the proportions of the metals are altered, and require an addition similar to the above. If the brass has not been recast, a little less lead will do, but if recast several times, it may take the full quantity.

Mechanics.

CURIOUS FACTS ABOUT IRON.—Colonel Cazen, in a recent article on the subject, says: During his sojourn in the arm manufactories of St. Etienne and Tulle, at the central depot of artillery, and at the manufactory of Chatellerault, he was able to make important researches on iron. The fracture of iron may be nervous, in grains more or less fine, or in facets sometimes having a surface of several square millimeters; often it presents a mixture of these three features. Thus it is impossible to judge of the quality of an iron before breaking it; and it is on this account that in arm manufactories they break a certain number of bars with which they make a certain number of pieces for which they are intended, and which are afterwards broken to ascertain their resistance—that is, the goodness of the iron, which, moreover, is still rendered brittle in presence of phosphorus, arsenic, or sulphur. The best irons are the nervous, then those of fine grain and with facets. On railways it has been proved that rails placed in the direction of the magnetic meridian are affected quite differently from rails placed at right angles to this direction; the former oxidize and do not become brittle. In intermediate directions the rails participate more or less in the qualities of those which are placed in the two extreme directions. What becomes of the iron which is now so plentifully used in the construction of buildings—girders, among others?

APPARATUS FOR FEEDING BOILERS.—Signor Chiazzari, of the Alta Italia Railway, has recently described a new apparatus for feeding the boilers of locomotives and other non-condensing engines with water heated to within a few degrees of the boiling point. The apparatus consists in bringing the feed-water in a finely divided spray into contact with a portion of the exhaust steam during its passage through the feed pump, and of an automatic arrangement for shutting off the supply from the tender the moment the regulator is closed, thus preventing the admission of cold water to the boiler. Mechanically the pump appears to be successful, as it has worked without trouble since January, 1876. Economically it seems also to have answered, for the saving in fuel, in a trial of four months, is said to have been very large.

ELECTRIC CAR SIGNAL.—A trial will soon be made of a new signal recently patented by Mr. I. A. Sherman and Mr. C. E. Mees, of Louisville, Ky. The first named gentleman is an accomplished electrician, and connected with the Louisville and Nashville Railroad. The invention consists in combining a signal device upon the locomotive with two conducting wires extending through the cars of the train, and terminating at the end of each car in adjacent contact plates, forming seats, together with a flexible cable having two insulated wires terminating in metal plates separated by a soft rubber block, to continue the circuit, but permitting it to be broken when the cars separate, and transmit a signal to that effect to the engineer. It can be applied to freight as well as passenger cars. The cost will be something more than that of the system now generally in use. —*Nat. Car-Builder.*

CEMENT FOR FIXING METAL LETTERS ON GLASS.—Copal varnish, 15 parts; drying oil, 5 parts; turpentine, 3 parts; oil of turpentine, 2 parts; liquified marine glue, 5 parts. Melt in a water bath, and add 10 parts dry slacked lime.

A new clay mosaic is being brought out, the advantages claimed for which are that one setting is sufficient for one hundred copies, the cost being comparatively small. It is said to wear well.

The Electric Light Company of Baltimore, Md., has been formed, with a capital of \$300,000, to produce light, heat and power by electricity.