preference effected suddenly. Thus, a convenient and satisfactory means for the purpose consists in a powerful screw-press fitted with a heavy fly-wheel or heavily weighted arms and provided with suitably shaped dies. By a further improvement the zinc is made more susceptible of being rendered malleable by being alloyed with a small portion, say, not more than 10 per cent. of lead, tin or copper. Another improvement consists in carrying each of the zinc masses in the boiler in an iron ladle of suitable size, such being clamped to some of the tubes or fixed inside the boiler in any convenient way, and not required to be removed when supplying new blocks or balls of zinc, as such blocks or balls have simply to be placed in the ladles after these have been cleaned out. The patentee claims as novel and original: 1. The use of zinc blocks or masses of a spherical, or spheroidal, or polyhedral, or cubical or other similar form for preventing corrosion in steam boilers, such blocks or masses having been subjected to compression after having been cast. 2. The forming of the blocks or masses of zinc alloyed with 10 per cent. or less of lead, tin or copper, and subjected to compression after having been cast.—*Engineering Review.*

ELECTRICITY UTILIZED IN MILLING.

LIKE other industries milling profits by the latest discoveries in electrical science. By its application several improvements have been introduced which brings the milling industry to a high degree of perfection, while at the same time they make the management of complicated milling machinery considerably easier and also more accurate. I mention here in the first place the different electric bells and signal apparatuses which afford communication between proprietors and employees, which communication they simplify to a great extent. At the same time a certain signal language is invented by the use of which the necessary orders are distributed over the entire establishment. The electric bell shows the miller which stones or rolls are running too hot, while through the "temperature contact" the so-called metallic thermometer, which is placed near every stone or set of rolls, the miller is warned and can do what is necessary in the matter. In large milling establishments a complete system of bells is introduced which, like the communicators in hotels, is connected with a board on which the different apartments are represented by numbers, and the whole is arranged in such a manner that when any stone or roll runs hot, at once the corresponding number on the board in the engine room drops down. In America successful attempts have been made to separate the bran from the middlings by means of electricity. They have also succeeded by means of an electro-magnet to eliminate metallic particles which may be found with the grain. The grain runs over a surface which is shaken in different directions before the poles of a powerful electro-magnet. The magnetic force works in this way as well on the grain as on the particles of iron found with it. By the attractive force of the electro-magnet these particles of iron are taken out and adhere to the magnet, and are removed from this by suitable devices.

Without doubt the transmission of power by means of electricity will find its application in the milling industry at no distant date. Although we are already able, by means of electric transmission, to utilize large forces at great distances with a fair degree of success, still this application has up to the present time been made only in a few instances. The problem of the transmission of power by means of electricity has, however, been solved only in a very few instances in a way that would be of general application, as for instance to the steam engine, water wheel and the wind motor, and these two last named forces are the ones which some day, perhaps in the near future, will be destined to furnish the motor power for machine shops and also for mills, with the help of electricity. Even if, as has been said, the transmission of greater forces has not been put to practice as yet, the reason for this is by no means that the transmission of power by means of electricity is at its present stage still too incomplete to solve satisfactorily the problem assigned to it, but the reason lies in the newness of the thing, and in fact, that the persons interested have thus far had no sufficient opportunities to convince themselves of the advantages of this transmission of force. To meet this want the "Electric Exposition of Vienna" is called together, where an opportunity is offered to the interested public to become acquainted with the electric transmission of power.

The electric transmission of power for milling purposes is shown here by the firm of Ganz & Co., Budapest, who have on exhibition a machine expressly constructed for this purpose, by which about twelve horse-power is transmitted by electricity. To accomplish this two primary engines in the machinery hall are set in motion by a locomobile, and the electric current originated in these primary engines is conducted by a thin wire to a secondary motor, which is set into motion by the electricity supplied by the primary engines. This wire, before reaching the secondary motor, is passed through an ingeniously constructed regulator, the purpose of which is to secure a uniform number of revolutions to the motor. Since it is a well-known fact that in a mill the pressure frequently changes, so that in proportion as the feeder lets in more or less grain, in the same proportion more or less force is required, we can readily perceive that the velocity of the secondary motor would continually change. This changing is prohibited by the regulator, which by an automatic introduction of resistance keeps the velocity of the machine uniform.

Another application of electricity which is very important for mills, as well as for other establishments, is the well known fire telegraph, which should not be wanting in any establishment. However, this telegraph can only indicate a fire that has already broken out, and enable men to prevent its further spreading. Electricity, however, offers a much more effective preventive against fire. For electricity has made it possible to establish for places which are in great danger of fire a method of illumination which, when properly used, completely excludes all danger of fire and explosion. It is the so-called "incandescent illumination," *i.e.* the illumination with glow lamps, which since their invention have made considerable headway. The principle of the glow light rests on the incandescence of a bad conducter of electricity. The history of this invention reaches back to the first ten years of this century. The first impulse to practical experiments with electric lamps was given by Prof. Jobard, of Brussels, who in 1828 advanced the theory that carbon, used as a conductor in a vacuum, would give a beautiful and intense light. DeChangy, a Belgian engineer, took up this theory and experimented for a long time with glow lamps, while he first used pieces of carbon and afterwards platinum as glowing substances, without being able to bring forth practical results. The American, Starr, was somewhat more successful, who in the year 1844 made in England very interesting experiments with the glow lamps constructed by himself. But the sudden death of Starr hindered the further perfection of these first experiments, and his invention was soon forgotten, but which his partner, King, had patented in the year 1845. Then followed a number of experimenters, who with different materials, as platinum, iridium, and mixtures of these two metals, and later also with carbon, made experiments with glow lights, without any great success however.

Thus far I have spoken of electric illumination in general as it can be applied in every industrial establishment, and especially in mills. Allow me now to go a little more into details concerning such application and the cost of such electric light as has already been introduced by Ganz & Co. into several flour mills and other establishments with the best results. This should be the more welcome to the milling interests, as to the best of my knowledge and belief, this topic has not been discussed in any of the periodicals with the clearness desirable for millers and manufacturers who wish to introduce electric light. I will, therefore, suppose you wish to do away with your present manner of lighting and introduce electric light in its place into your mill. Hitherto you have had in use a certain number of coal oil or gas lights. A coal oil flame in mills has an illuminating power of from five to eight candles, and a gas flame in a mill has no more as a rule; in other localities the illuminating power increases to from ten to twelve candles. All will be ready to admit that the manner of illumination in mills at the present time leaves much to be wished for, and especially is the degree of brightness in most cases extremely small. The proprietors of mills are forced to economize on account of the expense of illumination. Here electricity lends a helping hand to the proprietors to beautify and better the light without additional expense. In Hungary the Swan lamps have been extensively introduced of late; especially two kinds are used, those of twelve and those of twenty candle power. For mills the former would be sufficient. We shall now replace every coal oil or gas flame by an electric lamp, and the miller can determine the number of new lamps by the number formerly in use. In small establishments, especially in those in which water-power is used, it is preferable for the sake of economy to use the motor power of the mill for a generator of the electric light. In larger institutions, however, it is better to use the motor power of the mill for the generator and to erect besides a special engine, and to arrange the combination in such a way that the generator for the light is ordinarily supplied by the special engine, and only, in case that for some reason or another this engine should get out of repair, the large motor power would be called into action by means of friction couplings, in order that the illumination might continue without interruption. The boiler for both engines can under all circumstances be a common one, so that there is no necessity for double heating apparatus. It is the most appropriate to place the electric motor in the engine house, in order that it may be under direct supervision of the engineer. From this motor go the conducting wires, properly speaking, the main cable to the different places which are to be lighted. From the main cable the wires which lead to the separate rooms branch off, and from these wires the thinner wires to the individual lamps. The whole system has much similarity with the system of pipes in gas illumination, with the difference that by the latter only one line is necessary, while with electric light, conductors back and forth are necessary, and consequently a double main cable has to be laid. As in gas works, so is here also the diameter of the main conductor in direct ratio with the number of flames and the distance, while for the branching off into separate localities there as well as here small conductors are used. As with gas so it is also possible with electric light, to let the individual lamps go out or to light them, as may be necessary, and in electric light it is easily accomplished in a much simpler and more appropriate way, and I would especially call attention to the fact that the lighting of the several lamps is accomplished without the aid of combustible material—only by a simple movement of the hand. For the sake of economy as well as for other reasons, it is often desirable to increase the illuminating power of the lamps or to decrease it. For this purpose there is near the engine a resisting apparatus, with which it is possible to regulate the light. This apparatus can be compared with the valve of a gas tube which regulates the amount of gas and thus regulates the brightness of the several lights. This apparatus also serves to reduce the current in case a large number of lights are extinguished, and to increase it if more lights are in use. The firm of Ganz & Co. have constructed apparatus which are self-regulating. As this apparatus is rather expensive for smaller establishments, an ingenious apparatus has been constructed which warns the engineer when too much or too little current is generated.—*Translated from the German of Carl Zipernowsky.*

IS IT GOOD TASTE?

[redacted] fashion of ornamenting

this agreement that each of the three companies will continue to manufacture their distinct line of goods.

[redacted] TURNER & BURNS M'F'G CO. was

ing, Dr. Elliot Coues, of Washington, one of the [redacted] most ornithologists of America, makes the following caustic remarks: "The style used to be to wear plumes selected either for their beauty or colouration, or their gracefulness of shape; but the itch of savagery has broken out with aggravated symptons, to be appeased by nothing short of an ornithological museum. I once counted the feathers of no less than fifteen different birds on the dress of an Indian squaw; but then her alleged husband had one necklace of grizzley bear claws and another of human finger-tips, and circumstances alter cases, you know. It seemed to me less singular than the case of another woman whom I examined with some care shortly afterwards, on whose bosom rested a gilt tipped tiger's claw, from whose ears depended two claws of the same animal, in whose hair nestled the greater part of the external anatomy of a bird and to whose loins a live poodle dog was tied with a blue string. Such a toilet, I think, would be still more effective with the rouge and lily white in streaks instead of layers, and a fish bone through the nose.

TO CENTER AN ENGINE.

Move the engine by the fly wheel towards the end on which you wish to center it, till the cross-head is near the end of its travel, and mark the slide even with the end of the cross-head, and then with the surface gauge, or any fixed point, make a mark on the fly-wheel rim, crank disc, shaft or any finished revolving part, pry the engine past the center and till the cross-head passes the mark on the slide, then pry back again till the cross-head agrees exactly with the mark on the slide. This last, in order to have all lost motion in connecting rod taken in same direction both times. With engine in present position make another mark on the revolving part first selected. With a pair of dividers bisect the distance between these marks and price-punch the spot. Pry the engine around until this point coincides with the points of your surface gauge and the crank is absolutely on the dead center, if the axis of the piston rod and axis of shaft are in the same plane, as they should be.—*"Amos K." in Steam.*

The box-huckleberry, *Vaccinium brachycerum*, is stated to be a species in the process of extinction. A small patch of a few acres in Perry county, Pa., and another in Delaware are singularly isolated.