THE OMAHA DAILY BEE: SUNDAY, MARCH 25, 1888.-SIXTEEN PAGES.

IN THE ELECTRICAL FIELD.

How the Fluid Circulates Through the Industrial World.

ELECTRIC LIGHTING IN MEXICO

The Numerous Uses to Which the Invention of Vulcabeston Can be Put-Sewerage Purification - Brevities.

Electric Lighting in Mexico. A regular correspondent of the Boston Herald sends that journal the following from the City of Mexico: 'The use of the electric light began here a short time back with the employment of the Brush arc lamp for street illumination, the introducers being the Gas and Electric Light company. which, having its shareholders in England, illuminates this high perched city with a gas made of rosin from the mountains, brought in by wild looking Indians, so near is the connection of civilization and barbarism hereabouts. From the are light to the incandescent was a natural step forward and now we have these systems engaged in strenuous competition. The Swan, Thomson-Houston, Edison, Crompton and Fort Wayne Jenney. Of late there has been much competition among shopkeepers in securing the incandescent light for their show windows and the Edison and Swan may be seen so used. The Gas and Electric Light company are the controllers of the Swan patent, the Thomson-Houston is in charge of a Mexican commercial house importing American machinery, the Edison is handled by a Mexican firm, the Crompton by an English machinery and contract house, and the Fort Wayne Senney by an American house

The electric lighting fever is spread-ing to other cities in the republic, and the rivalry of the competing firms insures to dwellers in the interior cities a prompt supply of information regarding the merits of electric lighting. In the postoffice and other public places I have of late noticed the Edison lamps and they give much satisfaction. The Gas and Electric Light company is putting in the Swan, with the guarantee that the monthly bills of its customers shall not exceed their gas bills. I might re-mark, in passing, that gas is served here at the rate of \$7 in silver, or about \$5.25 in gold, per thousand feet. This fact ought to stop the grumbling of the good Bostonese when their bills come in, and I may also say that the Mexican meter is just as industrious, just as un-flinching in the discharge of its duty to the gas@company as is the Boston

The cost of incandescent lighting may be imagined when it is said that coal be imagined when it is said that coal costs \$20a ton silver, or \$15 gold, and wood \$12 per cord, or \$9 gold. In fact, electric lighting is very costly, but the Mexican, who, when they want a good thing, are willing to pay for it, no mat-ter what the bill is, are taking to electricity in a most surprising manner. I will confess that a year ago I wrote that incan-candescent lighting would not be succandescent lighting would not be successful here on account of the necessarily extravagant cost. I was wrong, and make huste to acknowledge myself a false prophet.

"At this altitude," as we begin to remark when commenting on the eccen-tricities of American envoys-at this altitude, let me say, the electric light is a perfect illuminant. It sends its rays through this clear mountain air a good deal farther than is the case in Boston, or, for that matter, at Vera Cruz down on the sea level. It is a project of the ayuntamiento, or city government, to introduce, by and by, the tower system for lighting Mexico, and it ought to be a success, the city being level and the atmosphere perfect. But, just now, the city fathers are paying \$400,000 per annum on the drainage of the Valley enterprise, and, as the City of Mexico does yot go into debt-clearing up its bills at the end of each year-there is no dispo-sition to go into unjustifiable extrava-Already the arc lights on the gances. principal streets have made the city safer, and have added to the public convenience. And it may be said that the incandescent light has come to stay. Another sign of modern Mexican pro gress.

character, and if so, it would appear to open up a field for the application of electrical engineering to which it would be difficult to assign a limit. The question of the disposal of sewage has, since the passing of an act of parliment forbidding the pollution of rivers, be-come a very pressure one in this course come a very pressing one in this coun-try, and many towns have gone to enormous expense in this matter, while

the results attained are often by no means satisfactory. A great deal of interest has been aroused by the publication of Prof. Elihu Thomson's method of rendering visible the phases of an alternating current. The method is unquestionably an extremely beautiful and ingenious one, and seems likely to lead to important results. It is possible, however, that the details of the arrangement are sus-ceptible of improvement by doing away with the levers altogether and adopting a device similar to that of Lissajous in his well known method of combining the vibrations of tuning forks. The

question of recording the shape of alternating current waves had already met with some attention in this country, and Mr. Swinburne has a device, which is not yet ready for publication, in which the dynamo is made to draw its own current waves upon a strip of paper in a permanent form.

Electric Safety Lamps.

Electrical World: More than two housand electric lamps are now in use in the coal mines of England and we are told that miners are in favor of the change, as they benefit considerably by the increased illumination. It is many years ago. says Industries, that it was suggestested that our coal mines be lit by electricity, but the use of portable lamps for this purpose has only recently been introduced. We hope that many companies will see the advantage of this method of illumination over the older and more cumbrous forms of safety lamp, and that an extended use of elecpricity in our coal mines may be a means of diminishing explosions. There is a disadvantage attending the use of incandescent lamps in mines, inasmuch as they offer no indications of the pres-ence of fire damp. It has been found, however, by Mr. Liveing, that a redhot platinum wire glows more brightly in air contaminated with fire damp than in pure air, and this fact has been recently utilized so as to afford a convenient indicator for the presence of fire damp in mines. As the wire can be heated by the current from the same accumulator as supplies the lamp, no additional en-ergy or expense is incurred, and we learn from experiments with this ap-paratus, much better and more reliable indications are afforded of the presence of an explosive mixture than when a Davy safety lamp is the only guide employed.

A Canine Compliment.

"Perhaps the greatest compliment ever received by any electric light company is that nightly tendered to the Thomson-Houston plant by a yellow dog," writes a correspondent from Canon City, Col. "Regularly taking his position under the bright rays of one of our street lamps, he proceeds to stretched himself out with all the delight that a dog exhibits in basking in the sun. It is amusing to see him, upon being disturbed, seek the opposite side of the street, look up at the lamp as if calculating the brightest spot, then reapse into slumber, as though he were actually sunning himself.

England and the Channel Cables.

The negotiations between the French and England governments for the joint working of the submarine cables across the English channel have progressed so far that no doubt whatever is now en-tertained but that a satisfactory working arrangement will be arrived at. The French government are so far com-mitted to the proposals of the English government, that they distinctly de-cline to consider the question of any

adhesion to operate the car under all conditions of track, loads and grades. **Electricity** in Washington,

Washington Correspondence Pitts-burg Press: Many of the members in the house afflicted with rheumatism go down to the engine room of the house and have "Pap" Talcott, the electrician give them a dose of electricity from his dynamo. John Clark, the clerk of the ouse, and S. B. Cunningham, the dis-

bursing clerk are regular patients of the electrical room and go down daily to be treated. The electrical arrangements for the capitol are more elaborate than is gen-erally supposed. The 1,500 five foot gas burners by which the house is lighted und the 100 or more jets in the rotunda are all ignited by electricity. In addi-tion to this there are numerous callbells from the ball to the superscript rooms

from the hall to the speaker's rooms and those of the chief stenographer and journal clerk, which are run by the same dynamo. Mr. Talcott and his assistant, J. A. Woodworth, has discretion as to when the gas shall be turned on in the house

The speaker, however, sometimes calls upon them to light up when he thinks it necessary and within a couple of min-utes after he has sent the word a blaze of light shoots neross and around the glass roof and the dim light coming from the sky is changed to that of the brilliancy of gas. The electrical dynamo is located in the basement, where rest the immense engines which run the great faus sup-plying the house with heated air, or

cold, as the case may be. In the engineer's room, presided over by Mr. Lannan, are located indicators by which the revolutions of each fan are denoted, and the number of cubic feet of air breathed into the hall above registered. There is also upon the wall a thermostat which exhibits the exact temperature in the house and enables the chief engineer to regulate his air heating apparatus accordingly. It is aimed to keep the temperature of the house at a uniform point of from 60

to 71 degrees. A very good illustration was given your correspondent of the difference of temperature of air in motion and that

rest. In one of the halls through which the air passes to the fan by which it is sent above, the atmosphere was quite close and warm, it being 75 degrees, as registered by a thermometer. Going near the fan when the air was agitated and a violent draught created. it was cold as Greenland, so to speak, and the reporter, drawing his overcoat close about him, looked at another thermom-eter, expecting to see it register about 20 degrees. He was surprised, how-ever, to find the same figures on that, viz., 75 degrees.

The impure air is exhausted from the top of the hall by the same method as that by which fresh air is supplied—by fans, different, however, in their shape, so as to create suction.

Electrical Brevities. The French cable company has given notice of an appeal from the decision of the tribunal of commerce, which gave a verdict for the Anglo-American cable company in its suit against the French company for failing to carry out its agreement with the pool.

The use of the telephone as a substi-tute for speaking tubes is rapidly ex-tending in this country. The West Chicago street railway com-oany has set apart \$2,000,000 of stock for

the purpose of providing the line with an improved motor, and is bound by an agreement to select within a year either the cable or the electric system--which ever may be considered the best and cheapest. A large proportion of the \$10,000,000 stock of the company is to be placed outside of the city, and some 7,000 shares have already marketed in the east.

Mayor Hewitt, of New York, has en-tored upon a crusade against telegraph He cannot hit

power can be introduced successfully and with safety and confort to the in-babitants of the city. JAThe system pro-posed has been in actual operation for more than a year in Beussels with great success. It requires an excavation of the street, but can beyplaced immediately on the tracks now in use.

ately on the tracks row in use. A correspondent in Power quotes Mr. C. J. H. Woodbury as follows: "Several years ago, I called the attention of a prominent electrician engaged on the question of the electric transmission of power, to the important purposes elec-tric motors could serve in operating relies mission meaning motions where it is salico printing machines, where it is necessary that each machine shall be driven at periods and rates entirely inlependent of its neighbors and solely upon the conditions of the fabric and pattern. This work is now done by independent steam engines, which take up valuable space and render the room so hot as to interfere, I believe, with the best work of the men. It is here that there is an opportunity for electric motors especially designed for such pur-poses, and there have been recent accounts in the foreign electrical papers of motors designed and applied in this specific manner in England." A bill has been introduced into the

New York legislature regulating the business of telegraphic companies. It requires messages to be written out in luplicate, the duplicate to be used for transmission, and the original to be re-turned to the sender. A company is made hable for mistakes in transmitting. In case a message is sent "col-lect," if it is not paid for at the other and, or if the person to whom it is sent cannot be found, the sender is made liable for the charge; if he refuses to pay he is made liable for five times the original charge, together with the costs of collection. Another provision abol-ishes the extra charge for insuring the is nest the extra charge for insuring the correct delivery of a message. The company is made liable for delivery, of a message. The company is made liable for delivery, and if no operator is at an office when a customer calls to send a message, the company is made liable for all damages on account of the delay. delay. Offices are required to be open

from 8 a. m. to 8 p. m. Much chagrin is felt by the submarine cable companies over the failure of congress to comply with its agreement, and enact certain laws for the better pro-tection of ocean cables. On May 13 next the terms of an international convention, together with the proclamation. are to be made known in Paris, and it is expected that all maritime nations will be represented in the provisions. France, England are the nations chiefly interested, four of the great cables joining the eastern to the western hemisphere — namely, the Gould and Mackay-Bennett cable—being owned by American citizens. This government was expected to adopt certain regulations and rules, as well as penalties, prescribed by the convention, and thus secure the fullest meed of protection for the arteries of international telegraphic communication, and it is feared that the failure of congress to act will result in excluding this government from the desired protection.

At a family dinner given the other day by Valentine Winters, a venerable banker of Dayton, Chio, under the plates were found envelopes containing deeds, stocks, bonds, etc., aggregating nearly \$500,000 as presents to his children and grandchildren. In like manner he divided \$400,000 between them in 1882, and it is not an uncommon thing for his children, to find \$1,000 checks under their plates.

INDICATIONS.

HILL & YOUNG.

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new methods denoting how men and women find content and happiness, discarding the old, uncertain means of ridding themselves of bodily misery. They seek, find and hold on to, not what merely relieves, but whatcures without recurrence of pain. Mr. Harry Williams, druggist, notary public and late postmaster of Greenville, Cal., not content with a mere statement of facts, affixes thereto his jurat and official seal, evidently an emphatic method of making it unques tionable. He says under date of March 6, 1884, attested in the manner described: "I am willing to state under seal of my office, from repeated observations. I have seen more benefit derived from a single application of St. Jacobs Oil than any remedy I ever used or sold on than any remedy rever used or some in twenty years' constant handling of medicines. I have recently had under observation a halv who for two days suf-fered severely from pain in the back so intense she could not sit up. One ap-plication of St. Jacobs Oil applied in the evening gave the patient a good night's rest, and she got up well the next morn-ing." June 21, 1887, he again writes: "I do not hesitate te renew what I have said-that too much cannot be said in avor of your wonderful Oil. Having used it in my own family, besides a great number of sufferers who have applied to number of sufferers who have applied to me, with almost instant and permanent relief, I can truly say that its use has effected cures to my knowledge and afforded relief that seemed incredible and almost marvelous." Also Sergeant Thos. F. Hogan, Northeast Police Station (residence, 205 N. Castle street), Baltimore Md states: "Mu wide had Baltimore, Md., states: "My wife had been a sufferer five or six years with intense pains in her back-lumbago-and found no relief from doctors. She used besides all kinds of remedies without benefit until finally I was induced by a brother officer, who had been cured by St. Jacobs Oil, to give it a trial to re-lieve my wife. I did so, and she used two bottles, which cured her completely. She has had no return of the pain. While using it our boy fell from a shed and sprained his leg badly. A portion of the Oil was used on him and it cured him promutiv. My wife attends to her him promptly. My wife attends to her household duties without trouble." The

PEABODY HOUSE,

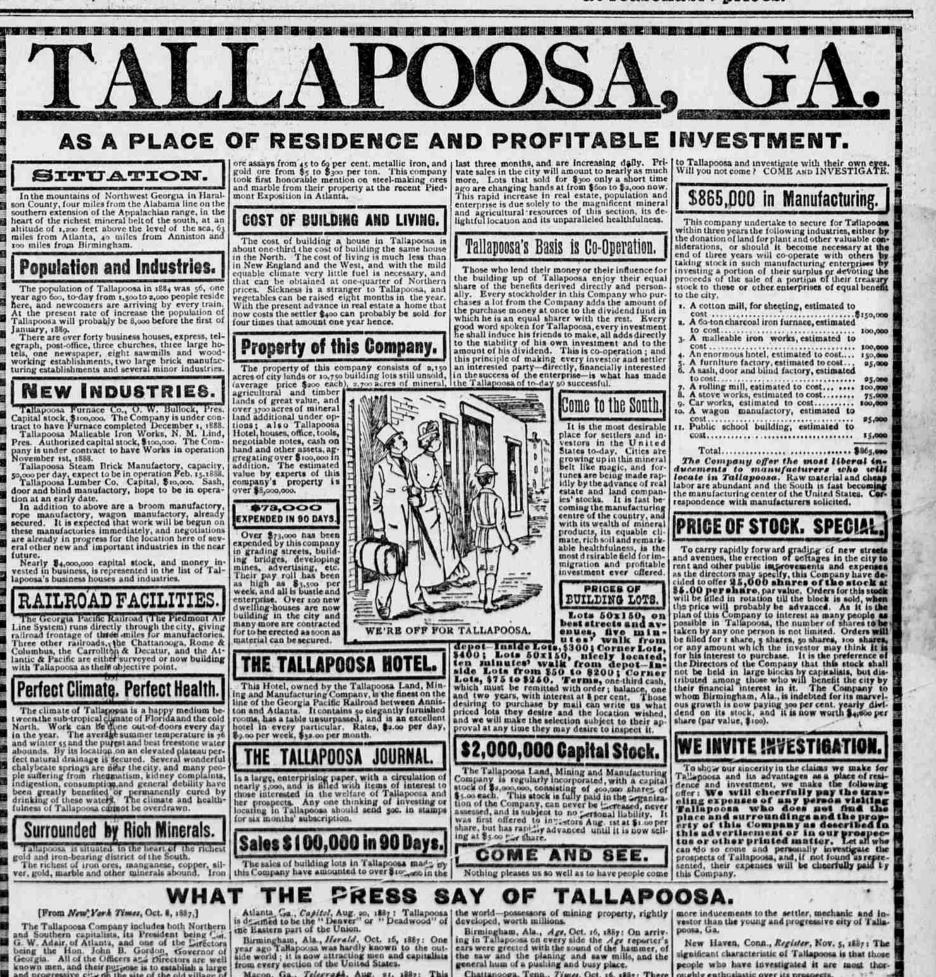
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Electricity as a Prime Mover.

In an admirable popular article on the electric motor and its applications, which appears in Scribner's Magazine of this month, Mr. F. L. Pope rightly draws attention to the ignorance which provails in the popular mind in reference to the true place of the electric motor. Thus he shows that the idea that the electric motor will be employed to propel vessels across the Atlantic and perform other work of a similar kind is not based on sound scientific principles. He says truly that electricity in its application to machinery is never in itself a source of power, but is merely a convenient and easily managed form of energy. But he goes further, and re-marks that the electric motor is at best only a secondary motor which must de-

rive its power from some other primary motor, as the steam engine, the turbine, etc. This, however, seems to us to be somewhat misleading. While in the present state of the industrial application of the electsic motor this seems true, it would have been well to have added a clause to the effect that the present rapid strides in thermo-electricity may at an early date put the electric motor on the same footing as the steam engine when viewed in that light. But, on the other hand, the electric motor must in its way be admitted to be as much a prime mover as the steam engine, the water wheel or the gas engine, all of which are considered by competent authorities to come under the category of "prime movers;" that is, machinery for converting any of the natural forces into mechanical work. The right of a place for the electric motor among the prime movers can have no higher acknowledgment than that of the colebrated Rankine, who, in his book entitled "The Steam Engine"but which is, in reality, a treatise on prime movers-treats successively of the water wheel, the steam engine, the

hot air and gas engine, and finally of the electric motor. Hence, while it must be admitted that the heat generated by the combustion of coal will probably continue to be the prime power employed, the position of the electric motor with respect to the direct utilization of that power may be changed at no distant date. And, besides, the elec-tric battery is to-day, and has for a long time been, the source of energy for the electric motor as a prime mover in 'every sense of the phrase.

Sewage Purification.

The Metropolitan board of works, of Londoa, has consented to allow an experiment to be made on a large scale

prolongation of the eoncession to the Submarine Telegraph company. The English government have been equally firm, the final resolution of the cabinet just communicated to the Submarine company setting forth that having thoroughly examined the question, they have "decided not to grant a prolongation of the company's license to land cables on British shores, and not to renew after January 12, 1886, the working agreement between the postmaster-general and the Submarine company." The communication really con-cludes the matter so far as the company is concerned, as if they cannot "land cables on British shores" it puts an end to their business. The only hope of the company lay in their being able to pur-

suade the French government to thwart the scheme of the British postoffice. So far as cables are concerned, the four which connect with France are in good order, recent repairs having made them almost as good as new. The two singld cables to France now used by the American telegraph companies are also working very well. The two Belgian cables are in a fair condition, and possibly, taking all these facts into consideration, the British treasury may make a mooe generous offer to the company than would otherwise have been the case

Electric Railway in Richmond.

New York Post: The Sprague electric railway was put in successful operation at Richmond, Va., recently. This road, which is an entirely new one, has been built by a New York syndicate, and is remarkable not only for the ex-tremely difficult conditions met with, but as being the most extensive application of electricity to street railway pro-

palsion in existence. The total trackage of the Richmond street railway is about twelve and a half miles. It runs a very irregular course, and reaches the principal parts of the city. About nine miles of street are embraced in it. The central sec-tion is double track for a distance of something over two miles, a part being laid on paved streets and the balance on macadam or unpaved streets, while all the extension and branch lines are on unpaved streets, many of them in clay soil, where it would be almost an impossibility to operate horses. The double-track section partly encircles the old state capitol and presents great difficulties. This part of the line, in a distance of less than 1,000 feet has on both east and west-bound tracks, four curves, the inner rails of the west-bound track being about 27, 80, 40, and 30-foot radius. The power necessary to turn these sharp curves with a track of standard gauge and with a wheel basis of six feet, is much increased by the fact that grades are encountered on the curves as high as 7 per cent, and the lay of the street has required some of the outer rails to be some inches below the inner one.

The electric circuit consisted of two parts-the overhead and the ground circuits, each being of compound charactor, a technical description of which is omitted, as it could scarcely be understood by any except trained electricians. Each car is fitted with a duplicate and very powerful motor equip-ment. This is carried entirely beneath the car body, is very compact, and nec-essitates no radical change in the con-struction of the car. One of the great

of reaching them by the law, and therefore proposes to keep a policeman before the door to warn off unsuspecting young men and women who expect to qualify in six months for positions paying \$1,500 a year.

There is so much electricity in a kiss that engaged lovers have been known to depend upon it altogether to light a spacious room.

Electricity has done much for civilization, but its possibilities, it seems, have not been exhausted. An "electric birch" has been invented, by which re fractory school pupils can be punished to a nicety and no marks be left. It is suggested that Edison or someone else will soon invent a process of converting sinners by electricity.

Electricity is now being used in Paris to enable persons of wealth at select dinner parties to do without the waiter or maitre d'hote. A minature railway is laid down on the dinner table and continued on the same level into the kitchen through an aperture in the wall and an intermediate pantry. Dishes come in and after making the round of the table go out in a sort of small truck moved by electricity. The truck at any moment can be made to stop. It does its work admirably as a dumb waiter, and any amount of art may be lavished on it to give it decorative

beauty. The German crown prince's sad ill-ness has given the world a new insteament. The Vienna correspondent of a daily contemporary telegraphs: An apparatus has been recently invented for examining the throat and larynx, which was tested with great success in the last medical congress. It enables the throat and surrounding organs to be examined by electric light, which is directed through the patient's mouth. The inventor is a well-known Vienna manufacturer of medical instruments. Aluminium is one of the most difficult and uncertain of metals to deposit elec-

trolytically. The following recipe is given by M. Hermann Rienbold, who states that it furnishes excellent results: 50 parts by weight of alum are dissolved in 300 of water, and to this is added 10 parts of aluminium chloride. This solu-tion is heated to 200 ° F., and when cold 89 parts of cyanide of potassium are added. A feeble current should be used.

The St. Louis Car company have completed seven street cars for the Wheel ing & Benwood Railway company, the cars being equipped with the Van Depocle electric motor, the current being communicated by wires extended above the tracks. The cars are finely finished and, instead of being numbered, they are given fashionable ladies' names. They are about the size of the ordinary two-horse street car, with an inclosed cab on the front platform for the driver, on the floor of which rests the dynamo and machinery from which the power is communicated to the axle by means of an encloss chain. The road over which they are to be used is five miles in length.

A petition from the New York & Har-lem Rallroad company has been pre-sented to the board of alderman, asking permission to substitute electric power for horses on the company's line. This is the Fourth avenue line. The com-pany was prohibited by its charter from using horse power south of Fourteenth with the process of sewage purification by electricity lately invented by Mr. Webster, says a correspondent of the Electric World. It is much to be hoped that the results will be of a successfu street. The petition recites that a car

Atlanta Ga., Capitol, Aug. 20, 1887 : Tallapoosa is described to be the "Denver" or "Deadwood" of the Eastern part of the Union. Birmingham, Ala., Hereid, Oct. 16, 1887 : One year ago Tallapoosa was hardly known to the out side world : it is now attracting men and capitalisis from every section of the United States. Macon, Ga., Telegradi, Aug. 21, 1887 : This Company is one of the richest mining companies in The Tallapoosa Company includes both Northern and Southern capitalists, its President being Cat. G. W. Adair, of Atlanta, and one of the Eirectors being the Hon. John B. Gordon, Governor of Georgia. All of the Officers and Pirectors are well known men, and their purpose is to establish a large and progressive city of the site of the old village of Tallapoosa. SEND FOR PROSPECTUS. An elaborate Prospectus, giving in detail full particulars of our property, illustrations of many Residences, Public Buildings, Factories, Etc., Plat of City, Price List of Lots, and other information of interest to Investors and Settlers, will be mailed FREE to any address on application. HOW TO REMIT. Make all Remittances for Stock or Lots by Bank Draft, Postal Note, Money Order or Car-Col. GEO. W. ADAIR, PRESIDENT, TALLAPOOSA LAND, MINING & MAN'F'G CO., TALLAPOOSA, GA.

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