ELECTRICITY IN NOVEL USES

Many Wheels Are Turned in Omaha by the Dynamic Current.

INSTANTANEOUS FIRE ALARM PERFECTION

Mechanical Plant of The Bee is Propelled by Electricity in Every Part of the Complex Process.

Outside of the electric lighting plant and the motor car lines, which are well known, there are many uses of electricity in the city concerning which the majority of the public has but little knowledge. Among the most interesting of these is its use in the public fire alarm system.

Omaha's fire alarm system is a most effective one. One hundred and nine fire boxes are scattered about the city, most closely together, of course, in the congested districts. They are connected by wires with every firehouse in the city. Most of the wires are underground in the conduits of the telephone company, which is required to give the city a place for its wires. In the business section all the wires are underground. The city also is entitled to the top pin on every electric light or telephone pole in the city, and a few of the wires are on the telephone poles. The advantage of the top pin is that there are no wires above it to fall across the wires it carries.

Working of the Fire Alarm.

Divisions of the system are made into four circuits, each containing about one-fourth of the boxes. With this arrangement, three-fourths of the boxes will be in working order if one circuit happens to become disabled. No circuit is allowed to remain out of order very long at a time, however, as it is tested at regular intervals. Then there is very little tendency to get out of order.

The working of the alarm is simple. One who wishes to turn in an alrm first breaks the glass in front of the box to get the key, or in the outlying districts where the key cannot be kept in the box on account of mischevious boys, he goes to the nearest house and gets it. He opens the box and pulls a hook which projects directly toward him. This completes the electric circuit and releases a spring which starts a little wheel to moving inside the box. On the periphery of the wheel are notches, and whenever one of these comes opposite a small steel piece fixed near the wheel the circuit is broken. The breaks in the circuit indicate at the firehouse the number of the box which has been pulled. Suppose an alarm has been sent from box No. 19. On the wheel in the box is one notch, then a long interval, then nine notches close together. At the firehouse there is first a sharp click, which shows that a circuit has been completed somewhere. Shortly afterward comes a tap of the gong, an interval, and then nine taps in quick succession. While the taps are being sounded, the gates to the stalls have been opened automatically and the horses have rushed under the harness. Two or three clicks of harness fastenings and the department is on the way to the corner where box No. 19 is located.

To guard against accidents in the conveying of the alarm to any one fire house, each box is connected with a repeater at the central telephone office and this puts the alarm on the wires to all the houses as soon as the box quits ringing.

Telephone an Auxiliary.

Every telephone in the city can be used as a fire alarm, and it is a fact that about 85 per cent of the alarms come in by telephone. On a red card over the mouthpiece are the words, "Call 37 in case of fire." No. 37 is the fire operator. As soon as she gets the location of a fire, she touches a button which gives all the houses one tap of the gong. The captain or lieutenant goes to the telephone and she repeats the location three or four times. Whether the news comes by telephone or regular alarm, the fire operator calls up the police station over a special wire and gives the location of the fire. This accounts for the fact that the bluecoated officers of the law are always among the first to arrive on the scene. In the same way the engineer at the pump houses is notified.

A telegraph plant connecting the firehouses is a part of the system. When one house learns of a fire in any but the regular way the telegraph instrument is called into requisition and with a few dots and dashes all the other houses and the fire operators are told of the fire and its location.

One Recent Invention.

A late invention, and an important one, too, in the way of fire protection, is an automatic system for buildings which indicates on which floor the fire is located. It is used by nearly all the largest wholesale and retail houses of the city. Among the best equipped are the Bemis Omaha Bag company and the McCord-Brady company. Instruments sensitive to heat are placed at various points on each floor and are connected with a dial in the office and with a dial box on the outside of the building. One wire runs to the American District Telegraph office, which gives the alarm to the fire department. When the firemen arrive they read on the dial in front of the building the number of the floor on which the fire is located.

Electricity and The Bee.

All the machinery used in printing The Bee is driven by electricity. A complete electric plant is maintained in The Bee building, furnishing power and light to the newspaper rooms and other parts of the building. The electricity is generated by two direct converted multi-polar generators one of 85-horse power and the other of 125-horse power. Formerly all the machinery used in the production of the newspaper was operated by one motor, but last fall an individual motor system was installed, obviating the necessity of turning all the shafts when only one machine was in use, and saving a great deal in the expenditure of power. The individual motor system means a motor for every machine, each motor furnished with electricity by wires running from the generators. Twenty-eight motors are used in the building, fourteen for linotypes and other machines in the composing room, seven in the stereotyping rooms, two in the press room, two in the mailing room, one for the pneumatic tube which takes the copy from the editorial rooms to the composing rooms, one for a ventilating fan and one for a lathe. The turn of a small lever will set any one of these machines in motion.

All the appliances are made with a view to the saving of time. They start the machines quickly and stop them just as quickly. When an operator in the stereotyping room starts a machine, he does not need to watch it. He turns to some other work and the machine stops automatically as soon as it has finished the task he has given it. At various points about the big presses are levers which may be thrown to stop them when anything any part of the mechanism breaks. Besides instantaneously cutting off the current, it applies an electric brake which stops the machine almost immediately.

The idea in having two generators is that one may be used in case the other gets out of repair. Sometimes the small generator is large enough to furnish all the power needed; at other times, when the work is heavier, and especially when two presses are at work getting out the Sunday paper, both generators are required. At other times the small one is not quite large enough and the large one is brought into service. Enough power is developed by the two machines for 2,100 electric lights of 16-candle power each. The large one could keep 1,300 lights going and the other 800.

Light is furnished to all the offices in the building. Power is provided where it is asked for and it is used by many of the dentists and physicians. The dentists run their drills with it from little motors in their offices and the physicians run their X-ray machines with it. A new machine has been ordered for the mailing room which will wrap and address papers with lightning-like rapidity. It also is to be operated by an electric motor.

Dental College and Electricity.

The new Creighton Dental school, which is to be opened this fall, is said by its faculty to be better equipped than any other dental school in the world. Not a bit of work is to be done by any other power where electricity can be used. Copper wires come from the walls and ceiling at several places in every room. Every drill to be used on teeth in the mouth of the human subject, every piece of apparatus for g'no. g or polishing teeth or annealing metal, will be operated by electricity.

One big room is fitted with several dozen chairs where the students pull and fill teeth. Before each chair is a little motor connected with a wire coming out of the wall, making the work of the dentist the most convenient. For annealing there are electric furnaces on tables mounted on rollers and one of these is pushed directly behind the dentist's chair, so that he has to move but a single step in his work.

A new electric device to be placed in the dental school is called the reflectoscope. In appearance it is much like a stereopticon and it casts a picture on a screen just the same. No slide is needed, but a drawing or a leaf of a book can be put into the reflectoscope and a reproduction of the figures will be cast in magnified form on a screen. It reproduces colors. The laboratories will be fitted with motors and electric furnaces and ovens. Two rooms are to be reserved for the use of the faculty in their experiments and the electric fixtures there will be a marvel to the one only moderately versed in electricity.

Power for Grain Elevators.

The elevator of the Nebraska-Iowa Grain company and that of Merriam & Holmquist are operated by electricity. The former is a good example of the well equipped modern elevator.

Cars are pulled along the track, the grain is unloaded, cleaned and loaded by electricity, and all is done by three men with less effort than would be made by ten men with machinery run by steam. At this elevator forty cars can be loaded and as many unloaded each day. Five motors are used, with an aggregate of 150 horse-power, and if the occasion requires, as much as 300 horse-power can be developed for two hours at a time. One motor is used for pulling cars along the sidetrack, and it can handle twelve cars at a time. Two are required to work the car shovels for unloading grain and the legs for hoisting it. One is for handling dirty grain and another for operating the fanning mill.

The Updike elevator at South Omaha and the Independent elevator at Sheely will be run by electricity also. The former will be ready for grain in a few days and the other in about a month.

Machine that Cancels Stamps.

One of the novel things, novel because so few people know anything about it, is the electric cancelling machine at the postoffice. There are three of them for various sorts of mail. Last year two of them cancelled 18,000,000 letters. The other cancelled stamps on circulars almost innumerable. Either machine has a capacity of 60,000 postal cards an hour, or 40,000 letters. This is ten times what could be done by a man by hand, for the very best be could do would be to get rid of ninety or 100 letters or post cards a minute.

The mail has to be gone over by hand first and all the extra thick envelopes and those stamped on the wrong end taken out. Then a large bunch of the envelopes is placed on edge on a metal slide and an automatic feed takes them one at a time, through the machine. They come out neatly piled at the other side with the stamp cancelled and the Omaha postmark across the face. Those stamped on the wrong end have to be cancelled by hand.

The mechanism of these machines goes with such speed that it is necessary to have almost all of it submerged in oil. For that reason little of the mechanism is visible, but is concealed by a metal pan which contains the oil. The machine which handles circulars has more than 400 parts. It is made specially for cancelling heavy mail and letters are never put through it, as the might be torn. The International Postal Supply company has a patent on the machines and will not sell them. It rents them to the government.

Used in Churches.

The big pipe organ at the First Baptist church is operated by an electric motor, with power secured from the electric light company. A motor attachment has been ordered for St. John's Catholic church and it will be in use perhaps in six weeks.

Protection from Thieves.

An electric burglar alarm is the protection of the city library and the valuable Byron Reed collection. The library people are very chary about telling the public how the alarm works, as they do not want the secret to become familiar to the man who has a disposition to take things not his own. Its effectiveness is nevertheless undoubted, for several times attempts have been made to rob the showcases and the trusty alarm has always caused the detection of the burglar.

Once at 11 o'clock in the morning, with an assistant librarian sitting not thirty feet away from him, a man attempted to saw into a showcase containing several thousand dollars worth of gold coins. He had not made many strokes with his small, noiseless saw, until bells began to ring in all parts of the building and he was arrested by the library watchman before he could get to the door. At night bells ring at the police station when an attempt is made either to enter the library doors or windows or to tamper with the showcases.

Every day the alarm is tested to see if it is in order. If the burglar only knew the time, he might be able to get something while the alarm was ringing. But in order to provide against this contingency, the time of testing the alarm is changed frequently.

Most of the banks now have vaults which are supposed to be burglar proof and few of them are provided with burglar alarms. A burglar alarm was used at the old United States National bank quarters, but the place is now vacant. The bank vault is so lined with a network of wires that the penetration of it by a burglar's tool would start a big gong to ringing.

VISITORS SENT ON THEIR WAY

Quartette of Colored Pilgrims Advised to Select Another City Than Omaha.

A quartet of colored people, two men and two women, known to the police throughout the country as the "Buffalo gang," remained in Omaha Saturday morning for a few hours. The party was arrested on arrival at the Union station by Detective Donohue and Officer Lahey, driven to the city jail in the official conveyance known as the patrol wagon, booked as suspicious characters, and after a few hours were driven back to the station and escorted to a train bound for Milwaukee.

The members of the party gave their names here as Nathan Green, James Madigan, Mary Stewart and Mabel Woods and their home as Chicago. All had tickets reading from Denver to Milwaukee and when arrested said their intentions were to stop at Omaha for a few days. They were advised to go on to Milwaukee.

From newspaper clippings found on the prisoners it was learned they recently had served sixty-day sentences at Denver for vagrancy. The men were arrested at 1121 Twenty-first street and the women at 2228 Market street, Denver, by Sergeant Patterson and Officers Berdieri and Hendricks. It is stated the party has been implicated in many petty thefts at Denver and other large cities. The local authorities took the four in charge as soon as they left the train. Each one was quite well dressed.

DREXEL PLANS FOR ACTION

County Clerk is Proceeding with Preparations for Primaries with the Voting Machines.

County Clerk Drexel is proceeding about his preparations for the primary election to be held on September 19, on the plan of fifty-four voting precincts.

"Just as soon as the city council gets these precincts defined and fixed," said Mr. Drexel, "I will go out and make contracts for the places which will be used as voting booths. I started to do this once already and had a dozen contracts made when I was compelled to stop. But it will not take this office very long to secure the locations when the council has acted."

The county clerk also expects that the new voting machines will be here in time to be set up in the primary booths, so that the voters may become acquainted with them. "We can get the machines here in time," said Mr. Drexel, "without any doubt. I am strongly in favor of doing it. To see and examine them will help in the education of the voters who are to use them in November. They will not, of course, be used in the primary voting, but we cannot get them here too soon, in my judgment, to give the voters an opportunity to study their peculiarities."

FIRST FOR INHERITANCE TAX

Executor of Japhet Hughes Estate Files Report Subjecting Legacy to Assessment.

Henry J. Hughes, as the executor of the estate of Japhet Hughes, has filed in the county court the first report of an executor made in Douglas county with a view to the assessment of the inheritance tax.

Japhet Hughes died on October 28, 1904, and his will was admitted to probate December 10, 1904, the son, Henry J., being appointed as administrator. He now reports there came into his possession as administrator a half block of land in South Omaha valued at $4,000, also personal property to the value of $6,545.

The report of Mr. Hughes and request for assessment under the inheritance tax law which became effective on July 1, 1903, is made under a section of that law which requires executors to report to the county court the amount of real and personal property coming into their hands.

MAKING RAIN BY ELECTRICITY

Contributor Calls Attention to Magnetic Connection of Earth and Cloud.

POSSIBLY WAY OF RELIEF FOR DRY REGIONS

Problem is to Pierce the Air Stratum that Separates the High-Floating Moisture from the Earth Below.

In some of the westen states, comprising what is known as the semi-arid regions, including the western portion of the state of Nebraska, much attention has recently been given to methods of soil culture and irrigation, owing to the fact that the rainfall is insufficient to produce and mature vegetation.

It is a known fact that impendent rain clouds often form and are carried over these regions without meeting with the proper conditions to bring about the ultimate state of condensation from which rainfall might eventuate.

In that portion of the west, there is a conspicuous absence of trees and vegetation of every kind, except that which is cultivated. Streams and bodies of water are widely separated, and both the absence of trees and bodies of water, tend to beset the elements of the atmosphere in their final effort to synthesize.

The unsaturated atmosphere between rain clouds and the earth, forms, on a large scale, a Franklin plate or condenser. The particles forming rain clouds, driven here and there by the wind, finally become heavily charged with positive electricity. The particles of vapor, being alike electrified, mutually repulse each other, and, until a discharge is effected, either abrupt or gradually, further condensation is impossible.

Can Nature Be Assisted?

Could nature be assisted in effecting a discharge, the particles would readily condense into drops large enough to make it possible for the force of gravity to carry them through the unsaturated strata. Under present conditions, small drops of rain penetrate the dielectric strata only a short distance until they are again vaporized and this rapid evaporation and condensation produces and increases the charge of electricity.

Lightning is said to have an electromotive force of 3,500,000 volts and a current strength of 14,000,000 amperes. This estimate, however, would not hold good in the semi-arid regions where the resistance of the atmosphere is greater than that of the humid regions, due to the greater thickness of the dielectric strata, and for this reason a discharge which will liberate the particles forming rainclouds cannot in many cases be effected.

The resistance of the atmosphere could be reduced materially in various ways. Where it is saturated by evaporation from streams and bodies of water it is found to be, to a certain extent, a conductor of electricity. Trees, and especially tall forest trees containing oily matter, are very valuable conductors and are the seat of a continuous current of electricity at all times. A few trees of this kind, assisted by the evaporation from a stream or lake, would reduce the resistance between the rainclouds and the earth several hundred thousand ohms.

Factors in Producing Rain.

Dioxide of carbon, formed by the burning of wood and other carbons, is, like moisture, a conductor of electricity. An electrified body placed in a draft containing dioxide of carbon soon loses its charge, and in consequence of this fact prairie fires, forest fires and battles which occur at a time when other conditions are favorable, are potent factors in the production of enormous rainfall.

A little consideration of these facts would lead to the belief that the presence of lakes of water which could be formed in the western part of Nebraska and Kansas by a systematic method of damming all draws and ravines; also trees of an oily substance (the taller the better) would assist nature very materially in controlling the elements of the atmosphere, which, in the form of rainclouds, so often disappoint the farmer.

The burning of a strawstack, or the starting of any large fire at a time when rainclouds are forming above, might also be productive of good results. In fact, the use of any method or device which will penetrate the dielectric strata and form a conductor for the discharge of the static electricity in the clouds might, at the opportune moment, result in producing rainfall which would otherwise be carried by the wind to "other lands than ours." C. O. B.