

APR 1893 P.A.1



Official Journal of the National Brotherhood Electrical Workers of America.

VOL. 1.

ST. LOUIS, APRIL, 1893.

No. 4.

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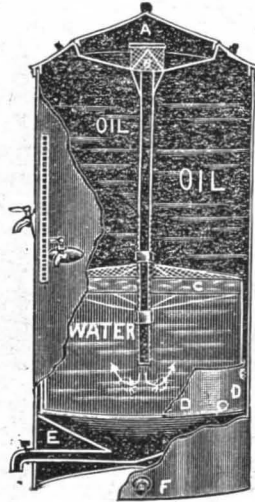
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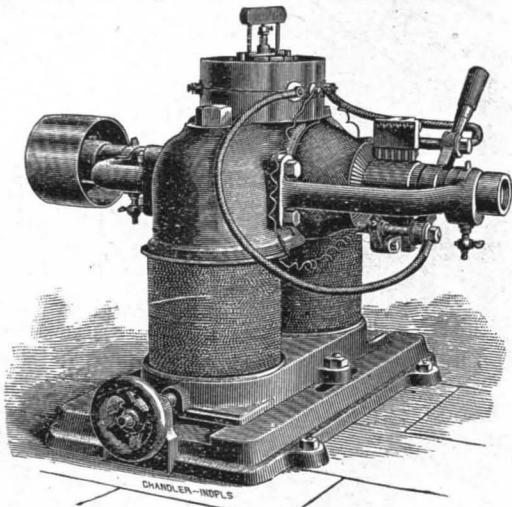
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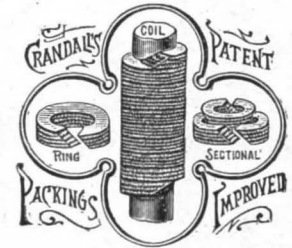
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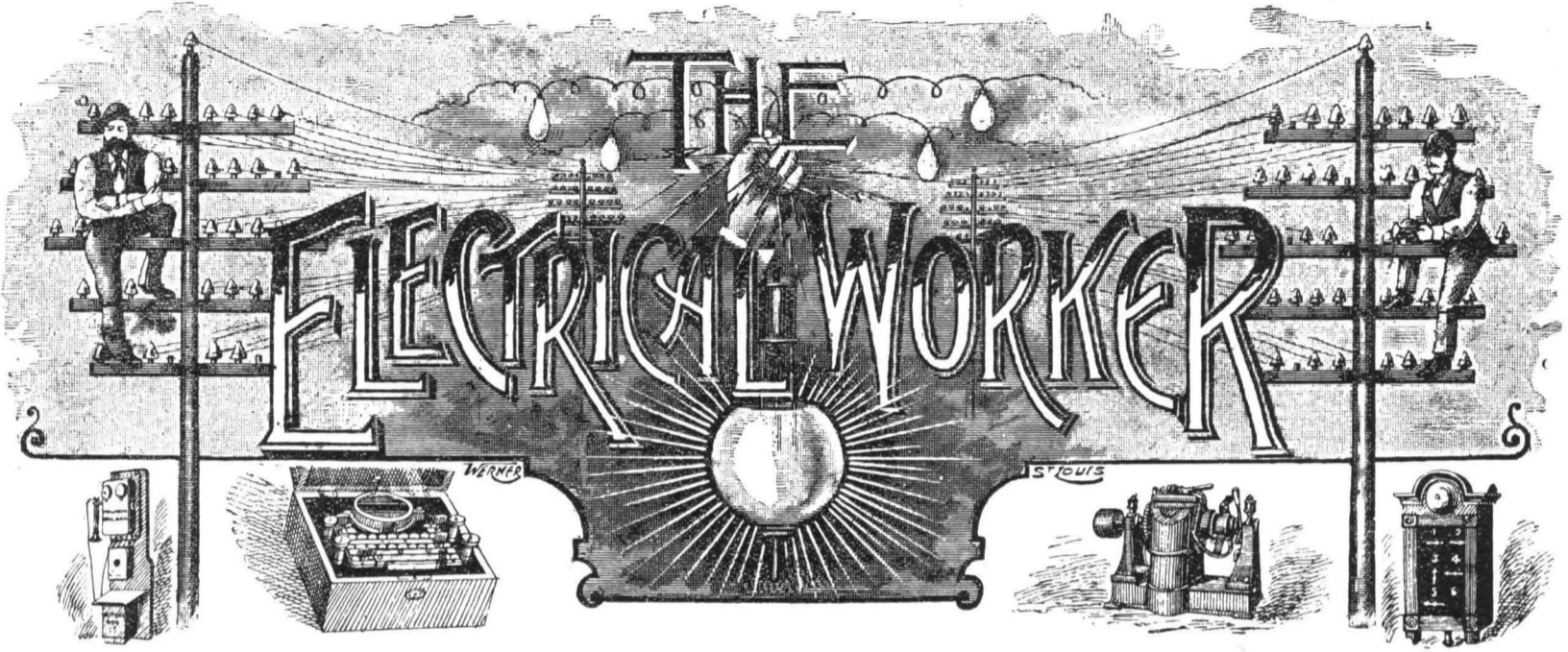
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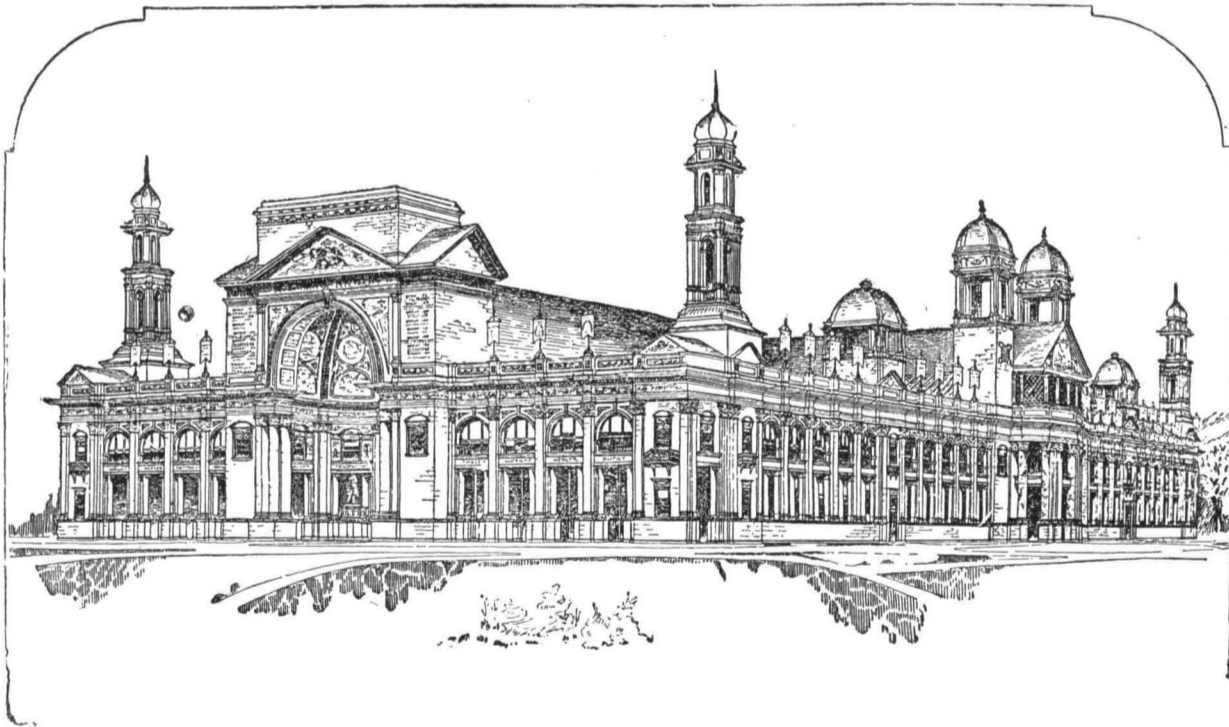


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VOL. 1. No. 4.

ST. LOUIS, APRIL, 1893.

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ELECTRICAL BUILDING—WORLD'S FAIR.

The Electrical Building, the seat of perhaps the most novel and brilliant exhibit in the whole Exposition, is 345 feet wide and 700 feet long, the major axis running north and south. The south front is on the great quadrangle or court; the north front faces the lagoon; the east front is opposite the Manufactures Building, and the west faces the Mines Building.

The general scheme of the plan is based upon a longitudinal nave 115 feet wide and 114 feet high, crossed in the middle by a transept of the same width and height. The nave and the transept have a pitched roof, with a range of skylights at the bottom of the pitch, and clear story windows. The rest of the building is covered with a flat roof, averaging 62 feet in height, and provided with skylights.

The second story is composed of a series of galleries connected across the nave by two bridges, with access by four grand staircases. The area of the galleries in the second story is 118,546 square feet, or 2.7 acres.

The exterior walls of this building are composed of a continuous Corinthian order of pilasters, 3 feet 6 inches wide and 42 feet high, supporting a full entablature, and resting upon a stylobate 8 feet 6 inches. The total height of the walls from the grade outside is 68 feet 6 inches.

At each of the four corners of the building there is a pavilion, above which rises a light, open spire, or tower, 169 feet high. Intermediate between these corner pavilions and the central pavilions on the east and west sides there is a subordinate pavilion bearing a low square dome upon an open lantern.

The Electricity Building has an open portico extending along the whole of the south facade, the lower or Ionic order forming an open screen in front of it. The various subordinate pavilions are treated with windows and balconies. The details of the exterior orders are richly decorated, and the pediments, friezes, panels and spandrels have received a decoration of figures in relief, with architectural motifs, the general tendency of which is to illustrate the purposes of the building.

The appearance of the exterior is that of marble, but the walls of the hemicycle and of the various porticos and loggia are highly enriched with color, the pilasters in these places being decorated with scapliola, and the capitals with metallic effects in bronze.

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THE WORLD'S FAIR.

Some of the Wonderful Things That Will Be Seen There.

Mammoth Machinery Exhibits.

Startling and Dazzling Effects That Will Be Produced by Electricity.

A Veritable World of Wonders, and a Spectacle of Enchantment.

Many people are already crowding into the power plant house at the World's Fair grounds to see the installation of the monster engines, boilers and feed pumps. This in itself is interesting, but when on May 1 the monster power plant is in actual operation there will be an exhibit of mechanical energy such as the world has not seen before.

The power plant occupies fully one-fourth of the entire floor space of Machinery Hall. The space south of the latter building, which is devoted to the power plant proper, covers about seven acres. It is 100 feet wide and 1000 feet long. In this space engines and dynamos, ranging from 100 to 2000 horse-power, are being placed. The boiler house adjoins, and herein are found feed-water heaters, condensers, feed pumps and all the other boiler appliances, besides the monster boilers themselves. The floor of the boiler room is of granitoid, and is nine feet lower than the floor of Machinery Hall. A visitor's gallery surrounds the room.

More than 25,000 horse-power in steam will be generated in this plant, and will pass from the boilers at a pressure of 125 pounds through overhead pipes. The steam passes into a main header under the gallery, the different sections being connected by an equalizing loop. The steam then passes through pipes to the engines.

BOILERS OF MANY MAKES.

The boilers include the following principal makes of batteries: Boot, Gill, Heine, National, Zell, Babcock & Wilcox and Sterling. These are all of the water-tube pattern, but each has special characteristics that will be quickly noted by boiler experts. The feed-water pumps, ranged alongside the boilers, are of the following principal makes: Dean, Barr, Knowles, Gould, Blake, Davidson, Cameron, Laidlaw, Wilson & Snyder, Canton and Snow.

In the power plant proper visitors may pass along any of the spacious aisles and see the monster engines at work. From this center of energy will radiate the power that keeps the wheels of the Exposition in motion; also the air pressure that drains the grounds by the Shone sewerage system, the water fountain supply, and the immense dynamic power that furnishes arc and incandescent lighting to all parts of the grounds.

The engines are ranged in blocks. In the first block are the large Worthington circulating pumps. The second block contain the air compressors which operate the Shone sewerage system and three engines which operate Edison generators. In the third block are Phoenix engines which will drive Eddy generators. There is also in this block a Westinghouse generator driven by an E. P. Allis engine. In the fourth block are Woodbury engines driving Mather generators and Ideal engines driving "C. & C." generators. From these four blocks will emanate the energy for the motors in the power circuits and the electric fountains. In the fifth block are Ball & Wood engines which will drive sixteen Brush arc dynamos of 60-light power.

THE GREAT ALLIS ENGINE.

The sixth block, which is the largest and the heart of the power plant, contains the 2000 horse-power Reynolds-Corliss engine, built by the E. P. Allis Company, of Milwaukee, which is the leviathan of the Fair. In this block there is also a 1600 horse-power Corliss engine built by Fraser & Chalmers, of Chicago. The Allis engine will drive two Westinghouse incandescent dynamos of 10,000 lights capacity each. The Fraser & Chalmers engine will drive one Westinghouse dynamo of the same capacity. The center block will also contain three vertical Westinghouse engines attached to exciter dynamos and a McEwen engine driving a "C. & C." generator.

The seventh block has Westinghouse vertical engines driving incandescent dynamos. The eighth block has a Buckeye engine, an Atlas, and a McIntosh & Seymour engine of 1000 horse-power each. These three will each drive a Westinghouse 10,000-light dynamo. The ninth block has two Westinghouse engines which will drive 10,000-light dynamos, completing the incandescent section of the power plant.

The tenth block has Buckeye engines, which will drive fourteen Wood arc dynamos of 50-light power. The eleventh block contains Russell engines driving twenty Standard arc dynamos of 50-light power. The remaining blocks, up to the fifteenth, include the balance of the arc lighting machinery, in which are Lane & Bodley engines, driving Thomson-Houston arc dynamos; also Atlas, Bass, Watertown and Skinner engines, driving Thomson-Houston and Western Electric arc dynamos.

OIL FOR FUEL.

The fuel for this enormous power generating plant is to be oil, which obviates the nuisance of coal delivery and ash removal. The Standard Oil Company, which has a special exhibit on the grounds, has a contract to deliver the fuel oil. The latter will reach the Exposition grounds through a six-inch main that is connected with the Standard reservoirs at Whiting, Ind. There is a daily capacity of more than 1,000,000 gallons of oil. There is a storage oil reservoir on the grounds, near the lake and about 3200 feet southeast of the power plant. Eight steel tanks are built within an air-tight vault on a floor of concrete, with side walls of brick and cement. This enormous reservoir lies partially below the surface, and, being sodded over, will present to the eye of the visitor a grass-covered mound. There are pipes joined to each tank which connect with the pumping station, thirty feet distant. This oil pumping station has a capacity of 400 gallons a minute. The pumps draw the oil upward and to a standpipe, and pass it through pipes to the center of the main boiler-house in the great power plant south of machinery hall. There is a reserve pipe line which may be connected with tank cars in the event of the Whiting pipe line becoming disabled from any cause.

FLASH LIGHTS ON HIGH TOWERS.

Greater, perhaps, than any other spectacular exhibit will be the wonderful flash lights on the tallest towers within the grounds. There will be two of these on top of Electricity Building. By many experts the devices for manipulating these lights are considered the most marvelous pieces of electric mechanism yet produced. By a delicate switch machinery the operator can throw the light to any altitude, or at any angle he may desire. As the flash lights are now extensively used on ships of war, their uses and general application will be a prolific source of interest to World's Fair visitors from warlike countries. In the purely ornamental uses of electricity the great electric fountains near the central court will be the most gorgeous exhibition of their kind ever attempted. Chicagoans who have made a trip to Lincoln Park to see the electric fountain play may be interested in knowing that a single one of the World's Fair electric fountains is ten times larger than the Lincoln Park fountain both in volume of water and in electric power. As there are two of these fountains, of similar size and close together, the spectacular effect will be one of the finest on the grounds.

EXHIBITS IN ELECTRICITY BUILDING.

In the Electricity Building itself will be grouped all the exhibits which offer a field for critical analysis of the development and progress of electrical science. The structure is located almost in the heart of the main group of buildings, and is one of the most easily reached on the grounds. Its ornate architectural features have already been dwelt upon. Its utility, in interior arrangements, is striking. The building is 700 feet long and 345 feet wide. Its general plan is a longitudinal nave, 115 feet wide and 114 feet high, crossed by a transept of the same width and height. Galleries, 115 feet wide, extend along either side of the building at a height of 30 feet above the main floor. Narrower end galleries, supported by trusses, connect the main galleries.

Chief Barrett and Assistant Chief Hornsby are now busy supervising the work of installing exhibits. It is a peculiar feature of the electrical exhibit that exhibitors try to hold back until the last moment from motives of professional jealousy. Most of the great electrical exhibitors have been making exhibits at various fairs for over ten years and are familiar with the work necessary to get their exhibits in shape. There is a disposition to avoid letting a rival firm or corporation know what an exhibitor intends to do until compelled to disclose his plans. This has given the heads of the electrical departments some little trouble, but there are now indications that the main exhibits will come with a rush during the next few weeks.

In the disposition of space the main floor has been devoted to the heavier exhibits, such as commercial apparatus for furnishing light, heat or power. The galleries will contain the ladder or wire exhibits, and all the lighter scientific apparatus. The center of historical interest will be in the gallery spaces, where the various models and precious relics will be shown.

AN ELECTRIC LOCOMOTIVE.

A specially unique exhibit in the motor department will be the 150 horse-power electric locomotive, built by the Thomson-Houston Company for the Baltimore and Ohio Railroad Company. This locomotive is now in actual service in the tunnel at Baltimore, and will be used as a special exhibit of underground electric railroading.

In the Department of Safety Appliances there will be shown recent inventions in the way of coat-thief detectors and pick-pocket detectors. When a sneak thief attempts to take a coat from its hook a current sets an alarm bell ringing. In the same way a person's pocket will be protected from the hands of an intruder.

There will be some especially interesting improvements in telegraph and telephone service. In the telegraph exhibit will be seen the great quadruplex mechanism by Edison, which is now the property of the Western Union Company. There may be an experimental exhibit in the Telephone Department of a mechanism for sending messages on the principle of a typewriter.

In the Electric Lighting Department some remarkable improvements will be shown. The lighting of railway cars is one of the more important fields of recent progress. In arc lighting it will be shown how easy it is to substitute the arc lamps for oil lamps in the headlights of locomotives.

It was intended to have an exhibit of electric chairs for use about the grounds, but these have been ruled out in favor of the students, who are to propel rattan chairs. Electric chairs will be shown in the indoor exhibits.

Among the most unique exhibits will be the new kinetograph, which transmits scenes to the eye as well as sounds to the ear. Professor Edison has a concession from the World's Fair managers to make a special exhibit of kinetographs. Special improvements in the phonograph will be shown.

In the application of the phonographs to commercial and social uses it is now customary to sell the machine and cylinders outright. A man in Europe talks to his wife in America by boxing up a cylinder full of conversation and sending it by mail or express. A lover talks by the hour into a cylinder, and his sweetheart listens to the sentiments while he is far distant. A business man dictates letters during the midnight hours while every one else is asleep. In the morning the fair typewriter puts the cylinder into service and prints out the letters. In a hundred other ways the storing away of the human voice has come to be a commercial and social necessity. This phonograph will be one of the popular exhibits.

THE ORIGINAL SIEMENS DYNAMO.

In the production of electric power the most interesting feature in the historical exhibit will be the original Siemens dynamo, which was built by Sir William Siemens, of London, in 1867. The Siemens family of electricians has become famous, and the German firm of Siemens-Halske controls some of the most valuable electric patents in the world. The original Siemens dynamo is chiefly remarkable for the fact that it contains the same principles upon which all modern dynamos are constructed. There have been improvements in workmanship, but the Siemens dynamo marks the birth of machinery for generating electric power. Electric lighting and heating and all the modern electric devices became possible when the dynamo was constructed, and the invention of Sir William Siemens was, perhaps, the most conspicuous milestone in the history of electrical development.

The historical exhibit will also include the original electro-plating machine which was made by Woolryche in 1844. This has been loaned to the World's Fair by the Birmingham (England) museum. The Fair authorities have given bond for its safe return. Out of this invention has grown the great electro-plating business of the present day. Side by side with the original Woolryche machine will be shown all the improvements in electro-plating up to date by the two great American firms, Hanson & Van Winkle, of Newark, N. J., and Zucker & Levitt, of New York.

These details furnish the merest skeleton of a system that is destined to challenge the admiration and wonder of every mechanical expert. The throbbing machinery will be the heart of the entire Exposition, and on its perfection of detail and absolute superiority to accident or change depends the success of the World's Fair. Carrying forward this great work requires a large staff of engineers, the principal chiefs of divisions being as follows: R. H. Pierce, electrical engineer; S. G. Neiler, first assistant; John Meaden, mechanical engineer; G. M. Mayer and W. S. Monroe, chief draughtsmen in the electrical and mechanical departments respectively.

ELECTRICAL EFFECTS.

Of all the separate World's Fair departments the electrical exhibit has a peculiar novelty and freshness in the popular mind. There is a mysterious halo about chained lightning. People read

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about the wonders of electrical development, but there is a profound ignorance as to details among the great multitude. The electrical exhibit at the World's Fair will popularize the study of the application of electricity to the uses of man. It will bring a knowledge of the subtle fluid within the reach of laymen, and even scientists familiar with the marvels of its uses will come to a fresh fountain of knowledge.

The Department of Electricity differs in one supreme particular from every other department of the World's Fair. The rapidity of electrical development finds no parallel in any other range of discovery. To the electrician ten years is a century, and even in one year all his pet theories may vanish under the light of some new discovery. Further, the science of electrical development has advanced just far enough to teach the electricians that they are merely on the threshold of unbounded worlds of knowledge. The World's Fair Department of Electricity, marvelous as it stands when compared with electrical knowledge ten or twenty years ago, may prove to be crude and insignificant before the rounding out of the present century.

Thus it happens that the World's Fair electrical exhibit is to make an epoch, but a rapidly changing one. There is no comparison between any previous World's Exposition and this particular exhibit at the World's Fair. This is the first time that any World's Fair has recognized in the field of electrical research and application a fit subject for a separate department. At former Expositions the few electrical devices that were shown were generally classed as part of the machinery exhibit.

SCOPE OF THE ELECTRICAL EXHIBIT.

The scope of the World's Fair electrical exhibit is, broadly speaking, two-fold. One great subdivision of the department is an illustration of the commercial and economical uses of electricity. In this division will be embraced all the machinery and devices that enter into the practical application of electricity in every day usage. This department will show the latest inventions for creating the three great economic commodities—light, heat and power. The exhibitors in this subdivision will all be corporations or firms, and many of them vigorous rivals.

The second grand subdivision of the electrical exhibit will relate to the development of electrical science. It will embrace all progress from the earlier and crude inventions to the latest marvels. The historical feature will be illustrated by priceless relics of the earlier inventors, models, books, drawings and maps, and every other connecting link between past and present development. The scientist will be enabled to make critical analysis of the claims of inventors by actual experiments. Within the walls of the electricity building the greatest electricians of the world will gather for mutual enlightenment and counsel. Special demonstrations and experiments, that only the initiated will understand, will be made for the benefit of the learned few. The practical exhibit will claim the crowds, and as most of the spectacular electrical features will be out of doors this department will doubtless be one of the most popular.

From the nature of the electrical exhibit it will be dispersed in all parts of the grounds. The electricity building will hold only a fraction of the real exhibit. The machinery and devices for electric lighting and motive power in all parts of the grounds will themselves be competitive exhibits.

ATTRACTIVE SPECTACULAR EFFECTS.

Scores of spectacular effects will claim admiration and interest. The electric lighting of the buildings and grounds will be a demonstration of both power and beauty in arc and incandescent features. About 8000 arc lamps of 2000 candle-power, and about 130,000 incandescent lamps of sixteen candle-power, offer in themselves an object lesson in latter-day lighting methods. But these are merely multiples of the ordinary standard powers. Greater extremes will be shown, from the powerful arc light of 8000 candle-power to the delicate incandescent lamp of one-sixteenth candle power, which gleams like a tiny fire-fly.

The intramural railway, which connects the various buildings, will be equipped with electric motive power. This exhibit will be one of the numerous cases where service to the public and the Exposition will be combined with a demonstration of especial electrical features. The motors of the intramural railway will probably be fed from an inner rail, as well as the outer rails, thus combining the trolley and rail systems. There will be other motors in various parts of the grounds. Adjoining the railway terminal track of the Pennsylvania system there will be special tracks for demonstrating both overhead and underground systems of electric motors. The electric launches on the lagoons will be perambulating exhibits. Pleasure boats and yachts in the outer harbor will be equipped with electric motors. Special torpedo

boats will demonstrate some of the warlike usages of electricity. Most of the perambulating motors will have storage batteries, which will be charged at central electric supply stations. Large exhibits, like the intramural railway, will have their own power plants.

CHICAGO.

At the present writing Chicago is the best advertised city on the face of the earth, and for the past two weeks she has well deserved her title as the Windy City. Hurricanes, cyclones, wind and sand storms have been of almost daily occurrence.

By a special dispensation of Providence, or, as her detractors claim, on account of the protection of a nameless old gentleman who is said to always take care of his own, these storms have been a blessing in disguise, as they toppled over several large egg-shell hotels that would have been occupied in a few weeks by hundreds of sightseers, whose added weight would have caused them to tumble down like houses of cards. Had they remained intact till the Fair was opened and each received its quota of visitors, the loss of life in all probability would have been something frightful. Therefore, we say, let the storms come on and the gentle zephyrs of spring turn into whirlwinds till the remainder of these flimsy structures are crumbled into dust. Evidently the architects and contractors of Chicago have forgotten that Beiden-sieck, a wealthy contractor and builder of New York, was sentenced to ten years at hard labor at Sing Sing for erecting just such death traps. Some of the largest of these so-called World's Fair hotels are still "For Rent," and looking for managers, but as the owners want as much for a six months' lease as the buildings cost, with a "cent per cent" interest added, they still remain unoccupied, and, we hope for the fair reputation of Chicago, they will continue so till blown down by some gale or fall by their own weight.

To the credit of the World's Fair Commissioners be it said that the great buildings erected by them on the grounds have proved their staunchness by withstanding these heavy gales, though more exposed than buildings outside that succumbed to the fierceness of the storms. Leaving these flimsy buildings to the fate that will surely overtake them, there is no doubt whatever that Chicago will have plenty of good and safe accommodations for the hundreds of thousands of daily visitors that will make their pilgrimage to the greatest World's Fair ever held.

Though plenty of work has yet to be done, there is no doubt whatever but that the Fair will open on schedule time, and that May 1, 1893, will be a red letter day in the annals of Chicago, and that the opening ceremonies will surpass in gorgeousness anything that has heretofore been attempted on such occasions.

For a few hours on Monday and Tuesday last it looked as if the completion of the "White City" would be indefinitely postponed, as the Building Trades' Council ordered a "walk out," and some 7,000 artisans laid down their tools and quit work, but owing to the good sense of the World's Fair Commission and the patriotic spirit and anxiety of the labor unions to cause no needless delay, a great strike was prevented and everything is now being pushed to completion with renewed vigor.

The electrical workers are doing their share of finishing, and a couple of hundred more brethren could easily find work, but as three weeks or so will wind up this extra work, it would not pay to call brethren from distant cities, as the railroad fares would eat up all the wages and leave them stranded here.

On May 1 the headquarters of the Brotherhood here will move from their present quarters to more commodious ones in the building to be fitted up for the Trades' Council.

Notwithstanding the inclemency of the weather, our present visit here has proved a pleasant as well as profitable one.

CHICAGO PERSONALS.

Mr. Russell, President of the Building Trades' Council, was a bigger man than Carter Harrison this week, and did what the latter gentleman could not do—prevented a great strike at the World's Fair.

J. H. Capps, Financial Secretary, has been working so hard lately that his brethren are afraid he will go into hasty consumption, and to prevent this they intend presenting him with a \$100 bicycle on next meeting night so that he can exercise by riding from and to his suburban home. No. 9 knows when it has a good man and intends keeping him if possible.

President George W. Edison is one of the busiest of mortals in this busy city, and travels from the North to the South Side and vice versa at electric speed. He wants it distinctly understood that he claims no kinship with the renowned Thomas W. Edison, and travels entirely on his own personality.

Bro. C. H. Patrick, whose wooden leg (which he fondly calls "Tessie") met with an accident lately, but will soon be able to resume work. Having a rich father, he always manages to have a few shekels in his pocket, and has never yet applied for sick benefits.

Bro. P. L. Ross, Press Secretary of No. 41, is doing well as a newspaper man, and is thinking of applying for a position as war correspondent should war be declared between the United States and Timbuctoo.

Bro. W. Meacham has proved such a success as Financial Secretary of No. 41 that he has some idea of starting a Brotherhood National Bank and posing as its President.

Bro. J. S. McNulty, of No. 9, is a good chronic kicker and can say more hard things in a given time than any other member of the Union, but a certain nervous twitching of the mouth and a kindly glint in his merry eyes softens the sting. He is the owner of several patents and sees "millions in them."

Bro. Arthur Howton, better known as the "Professor," has opened a hypno-Electric Institute in the Chicago Opera House Building, and, judging from his luxurious surroundings, finds it more profitable than "wiring." He has a very elaborate and expensive electrical outfit, and is said to have made some wonderful cures.

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Your Own Handwriting Sent Over a Wire.

The Latest and Most Marvelous Invention of Electricity as Applied to Commercial Uses.

The world of electrical workers has known for years that Prof. Gray was at work on a marvelous machine. All have been interested, certain people so much so that Prof. Gray's work has practically been done under lock and key, not to speak of armed guards. Experts say that the telautograph will rank with the great electrical inventions of the world and will place fresh laurels on the brow of its inventor. The inventor himself was placidly happy over the result of his six years arduous work, and received the congratulations of his guests with modest satisfaction.

Briefly speaking, the telautograph is an instrument which enables a person sitting at one end of a wire to write a letter that a second instrument, at the other end of the line, will produce simultaneously in fac-simile. It may supplant neither the telephone nor telegraph, but experts say it will take its place beside them in universal utility and hold it. The length of wire is considered a matter of no consequence. Whether the line extends across the building or across a continent, it

is believed it will be equally serviceable and successful.

WHERE THE WONDERS WERE REVEALED.

There was no blare of trumpets. The room in which an invited few first got a peep at the perfected machine is not conspicuous. It is situated in the fourth floor of the Home Insurance Building in a rather obscure corner, and the frosted pane of glass in the door is ornamented with no words whatever. There was a card over the door with Elisha Gray's name on it. Inside the room was a little office partitioned off, and for the rest the walls were adorned with engravings of a variety of old timers who figured in the earlier days of physics. While waiting, our representative, in looking about the walls noticed that Ben Franklin's benevolent face hung there, a companion piece to the strong-featured portrait of Michael Faraday. Alessandro Volta's countenance looked out from the wall alongside of the physiognomy of George Simon Ohm, both of their names immortalized in the terms that the young electricians in the laboratory are using continually. There was a picture of James Watt on the wall, near one of Sir Humphrey Davy, and another of Von Jacobi. A more modern face was among them, and one more familiar, too, that of Thomas A. Edison.

After viewing these mural ornaments, all suggestive of thunder and lightning, and Ben Franklin's kite, the eyes wandered to the tables arranged around the room, each occupied by a transmitting and a receiving instrument, and each surmounted by a placard giving its station number. F. W. Cushing was in charge of the exhibition, as Prof. Gray's assistant, and the office was also inhabited by half a dozen young electricians, lately out of Yale, the Institute of Technology and Ann Arbor. They manipulated the instruments and made their guesses easy in the midst of so many occult electrical currents. On one table was a central station with a simple switch-board, by which connection was given between various stations about the room in a way similar to the telephone exchange. Each table represented a station, and between each transmitter and receiver were resistance coils equal to six miles of wire.

Besides the exhibit of perfected machines there was another display hardly less interesting, which showed the evolution of the final triumph from the first crude contrivance. Hundreds of pieces of mechanism afterwards abandoned by Mr. Gray for something better covered a half dozen tables, and were much studied and wondered at by the spectators. A knotty pine plank, a foot square, with two magnets and an armature standing on one end and a circular mass of insulated wires tacked on the flat surface was the very first experiment. All of those parts and instruments will be found in the Gray Electric Company's pavilion at the World's Fair.

MECHANISM AND ITS OPERATION.

Speaking in the parlance of the great people and leaving scientists out of the question the telautograph is a twofold machine—a transmitter and a receiver—each contained in a wooden case somewhat smaller than a typewriter machine. The two instruments are necessary at each office, and stand side by side. A man can sit at a transmitter, take an ordinary lead pencil, write a note to a friend, and simultaneously another pencil at a distant station reproduces the words in exact fac-simile on another piece of paper. This second pencil is not touched by human hand, but is manipulated by electrical mechanism. That is the long and the short of the telautograph.

To speak more strictly, in transmitting writing on the telautograph an ordinary feed lead pencil is used, at the point of which is a small collar with two eyes in its rim. To each of these eyes a fine silk cord is attached, running off in two directions at right angles. Each of the two halves of this cord is carried around a small drum and supported on a vertical shaft. Under the drum and attached to the same shaft is a toothed wheel of steel, the teeth of which are so arranged that when either section of the cord winds upon or off of its drum, a number of teeth will pass a given point corresponding to the length of cord so wound or unwound. For instance, if the point of the pencil moves in the direction of one of the cords a distance of one inch, forty of the teeth will pass any certain point. Each one of these teeth represents one impulse sent upon the line, so that when the pencil describes a motion one inch in length eighty electrical impulses are sent on to the line.

The receiving instrument is practically a duplicate of the transmitter, the motions of which, however, are operated by electrical instead of mechanical means. In the receiving instrument are two escapements operated by polarized relays, and so constructed that each electrical impulse received will allow the escapement wheel to feed forward or backward one step.

The escape wheels are mounted on vertical shafts which carry drums of the same size as those of the transmitter. To these drums are attached the aluminum pen arms by means of cords on the principle of what is known in mechanics as the "bow-drill." These pen arms are hinged together at the writing point.

Now, in case of eighty impulses being received, the escapement will move forward or backward eighty steps carrying the drum, the direction corresponding with that of the transmitting pencil, and in this case the motion imparted to the receiving pen will be one inch in length. Two wires are required to transmit the writing, each of which is under control of one of the silk cords, and connects with one of the electrical escapements in the receiving apparatus. The connections are so made that, if the sending pencil should start from the center of the writing platen and describe a line to the right at an angle of 45 degrees from the horizontal, only the right-hand escapement at the receiving instrument would be operated.

FAC-SIMILE OF THE WRITING.

If the sending pencil should describe a line at the same angle toward the left, the left escapement at the receiver would be influenced. If the line should be a vertical one, both of the sending drums would turn equally, and as a consequence the receiving escapements would be equally affected, producing a vertical line. In case that the sender describes a circle with his pencil, the receiving drums would each be acted upon exactly as are the sending drums, and the resultant of the two right angle motions properly adjusted to each other would be a circle. And when any arbitrary figure is made at one end of the line, the same figure is of course produced at the other end. So accurately has this principle been worked out that not only is handwriting transmitted, but the actual characteristics of the writer's chirography are reproduced and an absolute fac-simile of his message is delivered by the distant receiver. The small steps in the received writing give a little roughness to the lines, but they are so slight as to be hardly noticeable. In fact, they are at the most only one-eightieth of an inch long.

HOW THE WRITING IS DONE.

The writing is done on ordinary white paper five inches wide, or the width of a sheet of note paper. It is contained on a roll placed under the arm rest. After a line has been written the pencil is brought back to the left side of the page, where it touches a small button, and at the same time the sender shifts his paper by moving a lever with his left hand. The writing field is, however, large enough to admit of several lines being written before moving the paper. In shifting his own paper he also shifts the paper at the receiving instrument. The pen arms at the receiver are made of small aluminum tubes which have the advantage of rigidity and lightness. Through one of these tubes the ink is fed, being conducted from a reservoir holding about half a gill, by a light rubber tube. At the point where the two aluminum tubes intersect there is fixed into that one containing the ink a small capillary glass tube that rests upon the paper when the pen is down. The point of this glass tube is the pen of the receiving instrument, and is so constructed that the ink will only flow through when assisted by the friction caused by the pen being drawn over the paper, and when the pen is lifted from the paper the ink is retained in the tube by capillary attraction. It is on account of the fineness of this tube that it has been found best to use only a writing fluid containing no sediment. Up to the present time ordinary green writing fluid has been found most available, as all common black ink contains sediment that might in time choke up the tube and prevent the flow of the ink.

SHOWS EACH MANNERISM.

One of the most remarkable things about the telautograph is that a person at the receiving instrument, being familiar with the mannerisms of the person at the distant end, can tell who is about to write by simply watching the motions that the receiving pen describes before it makes a mark or even touches the paper. Its every gyration is characteristic. Any man who can write his name or make his mark has some peculiarities in grasping a pen with which he himself is, perhaps, unfamiliar. Probably no two persons will pick up a pen to write with the same preliminary motions.

The jerky, fidgety man betrays his identity as soon as he attaches himself to the telautograph. Likewise the calm, deliberate man; the firm, strong-minded man; the vacillating individual; and the man who revolves his pencil in mid-air while his conglomerate thoughts take form and word. The receiving pencil is nothing but a servile imitator of the man who has hold of the transmitting pencil. The whole machine is aptly described by Prof. Gray as a very long tongue. The young men whom he employs in his laboratory as experts are

easily able to say in an instant which one of their number is going to write by simply watching the receiving pen.

FIRST MACHINE IN 1887.

It was early in 1887 that Mr. Gray completed the first machine from which writing was telegraphically obtained. The receiving and sending apparatus was mounted on a table. The machinery of the receiving instrument was incased in a box set on lofty legs. It was constructed on the variable resistance plan, but no provision was made for raising or lowering the pen or shifting the paper, these functions having to be performed by the receiving operator. On account of the numerous objections to any variable resistance system this principle was abandoned and the step by step principle adopted. On any variable resistance system where overhead wires are used changes in the atmospheric conditions so vary the resistance of the wires that the machine would not be operative except when adjusted to suit the conditions of the wires at certain times. On the other hand, the step by step plan is a positive one, and is, in fact, the principle on which the ordinary Morse telegraph is operated.

The second machine was begun in September, 1887, and completed in March, 1888, on this latter and better plan. The sending and receiving apparatus were here placed on one table, each incased in a small box and each having its own roll of paper. In this instrument the pen arms were worked by means of "gripping" armatures, which were operated by impulses sent from the transmitting end. This was an extremely complicated machine, the box under the leaf of the table being nearly filled with small pieces of electro-mechanism. But it had this point of improvement over the first machine—that arrangements were made for moving the paper and receiving pen without the aid of an operator. On this machine the first patents were applied for and granted July 31, 1888, but Prof. Gray immediately set to work simplifying the system, and in 1890 brought out a third instrument.

In this machine again the sending and receiving apparatus was combined on one table, and satisfactory results were obtained, but owing to the delicacy of the parts and the crowding together of the mechanism the instrument was not considered good enough for commercial work, and further experimenting was commenced, which resulted in the production of the present instruments in 1892.

The machines will be exhibited at the World's Fair. A space 15x60 feet has been reserved in the Electricity Building.

Power Transmission for Central Stations.

(By Louis Bell.)

First, if the distance over which he is to transmit power is moderate, he may use the ordinary direct current generator and motor, displace his engine with the motor and go ahead. But, unfortunately, direct current machines of any considerable capacity are practically limited in voltage by the existence of the commutator, an article on which central station men in general waste no love. Dynamos and motors of large size can not, individually, in the present state of the art, be satisfactorily built for more than about 1200 volts. Machines for greater voltage have very generally broken down in the experimental stage. For very small power units arc machines might be employed, but for the purpose of the central station man it is better to move his arc machines directly to the distant point. For voltages much in excess of that mentioned, we are then driven to the use of either direct current machines in series or alternating machines.

Where generators and motors are to be used as a single unit, direct current machines in series may be and are employed quite successfully, but as the voltage desirable on the line rises the system contains a greater number of units and becomes more complicated and difficult to apply to central station practice. For instance, it is highly desirable for the successful operation of motors in series that they should be, practically, coupled to the same shaft, and should run under similar and uniform conditions, so while there are cases in which the method of coupling in series may be both convenient and cheap, it is in my opinion better general practice to employ alternating currents, after passing the ordinary limitations of direct currents.

Here we encounter a complicated state of affairs, for the central station man who attempts to investigate the subject is immediately surrounded by a cloud of mental dust through which he sees dimly the outlines of plain alternators, bi-phase, tri-phase and multi-phase generators and motors, condensers, Geissler tubes, six-foot fuses, electrified wall-

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paper, and the other properties of a well-equipped modern high-voltage electrician. The substance of the matter, however, is something as follows:

We want to use power transmission by alternating currents for two good and separate reasons—first, because we get rid of the commutator and can therefore use as high voltages as we can safely insulate in the machine; second, because, by the use of transformers we can obtain for the transmission line itself any voltage which we can insulate, and thereby enormously decrease the cost of the copper which must be stowed away as permanent investment in our line.

Multiphase currents, and by this I mean currents having more than one phase, are subject to the same general laws as any other alternating currents. Their most valuable peculiarity lies in the fact that for alternating currents of more than one phase excellent motors can be built which will run at a steady speed, start under heavy load, and in general possess very much the same qualities as a well organized shunt motor of the ordinary kind. Incidentally, certain of the multiphase systems, more especially the three-phase, enjoy the advantage of effecting something of a saving in copper, under favorable circumstances up to 25 per cent from what would be required by a plain alternating current of the same nominal voltage. This saving is merely from the fact that in the three-phase line the currents do not have their highest value at the same time, so that at any particular instant two of the wires may serve as a sort of multiple return for the third. This advantage would be immediately thrown away, if for the three currents of different phase three separate pairs of wire were employed, as it is thrown away where for two currents of different phase two independent circuits are used.

The fundamental difference between single and multiphase systems then is mainly the adaptability of the latter for driving motors, and multiphase are better than single phase motors principally in their ability to start under load, and somewhat larger output for the same weight.

Wherever, then, single motors are to be driven for operating, we will say, an electric light station, it is largely a matter of convenience whether we employ single or multiphase motors. If the former can be conveniently started they are fully competent to take care of the work, except in one special case which I will mention presently. The multiphase motors, whether synchronous or otherwise, start very freely, and may or may not be economical in cost of copper, according to the arrangements of the circuits, as I have before mentioned.

A single case in which multiphase transmission becomes of great importance when the object is to work an existing central station is in that case where railway circuits are to be supplied. A railway machine is subject to so great and violent variations of load that if it were driven by an ordinary synchronous alternating motor, the latter would run great risk of being pulled out of phase by a sudden short circuit, when it would stop and stay stopped until deliberately started up again. The multiphase motor can also be pulled out of phase, but not quite so easily, and it can be more readily started. We can, however, where railway currents are necessary, do much better than to drive the dynamos directly by motors of any kind. We can for this use start with the multiphase current, and through the medium of a single machine, scarcely more complicated than an ordinary railway dynamo, transmute this multiphase current into a direct 500-volt current of the ordinary sort. This very valuable result has been brought about through the ingenuity of my friend, Mr. C. S. Bradley, who invented the device a half dozen years ago. It has lain dormant, principally because there has been no special call for power transmission of any kind until recently, but to its thorough practicability I can personally testify, as a 100 kilowatt triphase direct current transformer which I recently tested, operated in the manner described, showed an efficiency of over 95 per cent at full load, stood sudden variations from no output up to 100 kilowatts and back again without even a wink at the brushes, and bore up under heavy overload without difficulty. Whenever it is desirable to operate railway circuits by power derived from a distant source, these machines fulfill all practical requirements, and I believe are destined to come into very extensive use, and play an important part in the development of very long electric railroads.

To sum up this point, where single motors are to be employed for driving other electrical machinery, either synchronous, alternating or multiphase motors of various sorts can be successfully employed. Where railway dynamos form a part of the load, a particularly good result can be obtained by using for this particular portion of the work the multiphase direct current transformers. So much for the operation of existing plants by

electrical transmission of power where it is merely intended to substitute a motor or motors for an engine.

Now take up the case where a centre of distribution is to be fed, consisting, it may be, in part of an existing station and in part either of extensions and new circuits from this plant or subsidiary centers of distribution having other districts of the same town. Here the problem becomes more complicated, and it is almost impossible to lay down any general procedure. Each case is best handled by itself. We can, however, enunciate certain principles which will aid in the discussion of any definite case.

First, we can feed all existing railway circuits and extensions thereof very effectively and economically by use of the triphase direct current transformer just described.

Second, we can handle all direct current incandescent systems, whether two or three wire, by means of the same type of apparatus, the triphase direct current transformer.

Third, we can successfully operate any existing alternating incandescent circuits or any extensions thereof by feeding alternating current from the distant point directly into them through banks of transformers.

Fourth, if any new centers of distribution are to be made with circuits independent of those already in existence, we can operate these circuits very effectively for both lighting and motor service if both be necessary, by employing multiphase apparatus, and right here let me say that there is one widely spread error which I desire most emphatically to contradict. It has been asserted that incandescent lighting can not be successfully done on multiphase systems, especially triphase, since this system happens to have been most talked about. This statement is absolutely false, to my own personal experimental knowledge. Lamps can be as successfully operated on systems of two, three or more phases, as on an ordinary single-phase circuit, provided equal pains be taken with the distribution of copper in the lines and the regulation of the voltage at the dynamos. If these conditions are observed, a two-phase circuit with separate wires acts substantially as if it were fed from two ordinary alternating dynamos. A triphase circuit gives a similar result, and if more phases were concerned the same would be true. If the condition of constant voltage at the centre of distribution be fulfilled, as it can be and must be for successful operation on any system whatever, two and three-phase incandescent lighting systems can and do work admirably. Furthermore, if we combine circuits for example, if we use but three wires instead of six for the three-phase system, there is no exact equality of balance required between the lamps placed in different connections across these circuits. On the three-phase we would place lamps between each possible pair of the three wires, this arrangement gaining, as I before mentioned, in copper wire, enough to compensate for the slight inconvenience in connecting three sets of lamps instead of one or two. Branches can be run from any two wires of the triphase arrangement, and lights placed on them will act exactly as if they were placed on any ordinary alternating circuit. With such an arrangement you should be able to throw off all the lights on one side of the circuit without producing any noticeable variation in the lights of the other two branches—no more variation, for example, than you would get if on a given set of secondary mains from a common transformer you were to turn off or turn on one-third of the total number of lights. If any man comes to me and says that a three-phase system will not run lamps successfully unless there is careful balance between the lights on different sides of the circuit, I have in that statement sufficient evidence to convict him either of ignorance of the principles of wiring and dynamo regulation or of willful misrepresentation of the facts. I lay stress upon this matter of incandescent lighting in defense of multiphase systems, because it is the one upon which they have been most often misrepresented, chiefly through foreign experiments, which I do not hesitate to denounce as clumsily conducted.

In taking up the condition I have just mentioned, that of new centres of distribution, I may briefly refer to the properties of multiphase motors, which have been the subject of all sorts of curious misstatements. A multiphase motor, I do not care whether it has two or more phases, should if properly built have very nearly the properties of a good shunt motor, and not far from the same efficiency. Incidentally, it has the advantage of having no commutator, and no necessity for any moving contacts. It starts under two, three or more times the running torque, just as a shunt motor does, and by virtue, if the torque is extreme, of a heavy starting current, just as a shunt motor would. It comes rapidly up to a nearly fixed speed, and remains nearly at that speed under variations of load. If overloaded it stops, like

any other motor. In addition, it has one great merit that shunt motors do not have—that of running at nearly constant speed independent both of load and moderate variations in voltage. It is, on the whole, less thin-skinned than a shunt-motor. I have experimented with a considerable number of multiphase motors of the induction type, to which I here especially refer, and although I have seen some terribly severe tests in the way of overload, I never yet saw any symptoms of a burn-out. The efficiency of these machines should be and is at least within a per cent or two of ordinary shunt motors.

There has been much discussion as to the relative merits of two and three-phase induction motors. In general the more phases, the smoother action of the machines in various respects. I have never yet seen a two-phase motor any better than a three-phase motor. I should want a pretty careful series of tests to convince me that I had seen any one as good. The difference between them, with proper design, ought not to be very great, though the three-phase has the advantage in cost of wire. There are two important points in which multiphase motors have been misrepresented, which I should like to mention.

First, it has been stated of them that they take an enormous current when running light; and, second, that they introduce a very large and most objectionable lag in the circuit, so that the apparent current on the line is much greater than the energy current. Such facts have doubtless been observed. Broadly speaking, they have been due to faulty design. A multiphase motor will always take a somewhat larger current when running idle than the corresponding direct current motor, but it takes very little more energy, as the phenomenon of lag then becomes noticeable, so that, of the apparent current running light, only a portion represents energy. It is a perfectly simple matter to cut down the current required by a multiphase motor running idle to 20 or 25 per cent of the full load current, still retaining a motor excellent in its other properties. As motors where power is sold by meter are usually cut off when not needed, the whole question of this idle current sinks into insignificance. The same is true of the alleged lagging current. If a multiphase motor (I speak with certainty at least regarding the three-phase) of 10 or 15 h. p. should show at full load more than 10 or 12 per cent of lagging current, I should consider it to be badly designed, so that these two questions of so-called idle current and lagging current as disturbing factors in a multiphase line can be and are reduced by proper care in designing to comparatively insignificant quantities. It has been very ingeniously suggested to give them a further shove down into oblivion by means of condensers, but it is a commercial rather than an electrical question as to whether leakage current and lag had better be thrown quite into the abyss by the added complexity of condensers or left hanging on the ragged edge without them.

In case, then, of working a central station from a distant water power where necessity for extensions or new centres of distribution exists, we have plenty of methods available. Triphase direct current transformers for railway and direct current lighting service, alternators to feed into the existing mains or to supply extensions for them and for new centres where light alone is to be employed, ordinary alternating currents; or where both light and power are necessary, multiphase apparatus which, as I have shown, is entirely applicable for such a mixed system.

I may add that there is a possibility that we may have before long practicable motors to run on an ordinary alternating circuit constructed after such methods as were suggested by Prof. Thomson a few years ago. In very small sizes they are already practicable. Brown, abroad, has been making a desperate effort to exploit these very methods on his own responsibility, and has obtained motors which run successfully, but as yet do not start well under load. From what I can learn of them, I doubt very much if they are any improvement on the motors of the same type shown by Prof. Thomson at the Paris Exhibition, or on Mr. Tesla's motors for running on a two-wire circuit.

Whatever the methods which may be employed, several serious questions must be confronted when one attempts to transmit power for supplying central station or any other apparatus. One of these which presents itself immediately is whether or not in an alternating transmission it is advisable to use step up and step down transformers. The principal determining factor in this is cost. The higher voltage we can supply direct from the main line without increasing its cost considerably, the cheaper we can make the installation. Unfortunately in building dynamos the armature coils have to be insulated, and where the voltage is very high the insulation is correspondingly thick, so that with a given amount of material, we must in

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building a high voltage machine take up with insulation the space which would otherwise be available for copper. The result is that a dynamo wound for 4,000 or 5,000 volts is intrinsically more expensive, unless the size be very large, than a machine wound for 1,000 or 2,000 volts, besides being considerably less reliable. Machines of such voltages as these have been built in this country and abroad, and some of them have given very fair results, but they are expensive to manufacture, at whatever prices they may have been sold in individual instances, and it is my personal opinion that where it is necessary on the score of economy to raise the voltage as high as 4,000 or 5,000 volts, it is better and cheaper, unless the units be very large, to use step up transformers and carry the voltage up to 10,000. Assuming 2,000 or 3,000 volts as the available potential obtained from the machine direct and then estimating the cost of a given installation, first using these machines, and second, using low voltage machines with step up transformers, we find that at prices ordinarily charged for apparatus and copper, the two methods become of equal cost, at a distance of somewhere about seven or eight miles. Above these distances, the step up transformers cheapen the plant, below it they increase the expense. We can draw the line at no specified given distance for the general case, but can very easily for any specific case.

The amount of drop advisable in these long distance lines will depend, of course, principally upon the relative prices for copper and the apparatus necessary. If copper be relatively cheap, it pays to employ a good deal of it. If apparatus is relatively cheap, it is better to use larger generators and allow more drop on the line. Fifteen to 20 per cent will hit the large majority of cases on the score of economy and convenience. It should be remembered, however, that for such drops as these, good regulation is most essential, but good enough is available with the direct, alternating or multi-phase machines, to make these drops thoroughly practicable. The approximate figures I have just given on the limitations of the step up transformer and on drop are the result of the investigation of a large number of concrete cases which I have had occasion recently to examine in detail and for a number of which the apparatus is now in process of manufacture. I, therefore, feel personally convinced of the practicability, both theoretically and otherwise.

RECORD OF PATENTS.

The following recent electrical patents are reported by Higdon & Higdon & Longan, patent lawyers, 215, 216, and 217 Odd Fellows' Building, St. Louis, and 48 Pacific Building, Washington, D. C.

- 494,042, System of winding armatures for dynamo electric machines, W. M. Thomas, Grand Rapids, assignor to L. Warfield, Detroit, Mich.
- 493,647, Burglar alarm, C. H. Pratt, Lancaster, Pa.
- 494,900, Electrical attachment for rocking chairs, C. E. Hartelius, Bay Ridge, N. Y.
- 494,091, Electric cigar lighter, W. M. Thomas, Chicago, Ill., assignor to L. Warfield, Detroit, Mich.
- 493,777, Electric clock striking mechanism, W. Kaisling, Allegheny, Pa.
- 493,672, Automatic electric cut-out, F. B. Badt, assignor to Western Electric Company, Chicago, Ill.
- 493,673, System for transmitting electric currents, E. Bains, assignor to himself, E. J. Mitchel, Brooklyn, and A. L. Mitchel, Rockville, N. Y.
- 493,868, Switch for electric fixtures, J. Hutchinson, New York, N. Y.
- 493,842, Electric lighting system, S. W. Rushmore, Brooklyn, N. Y.
- 493,679, Dynamo electric machine and motor, H. P. Brown, New York, N. Y.
- 493,745, Dynamo electric machine, F. Bain, Chicago, Ill.
- 493,739, Electric arc lamp, E. Thomson, Lynn, Mass., assignor to Thomson-Houston Electric Company of Connecticut.
- 493,629, Thermal cut-out for electric lamps, H. Lemp and M. J. Wightman, Hartford, Conn., assignors to Schuyler Electric Company of Connecticut.
- 493,695, Conduit electric railway, H. P. Feltrow, assignor of one-half to R. R. Brown, Columbus, O.

- 493,935, Electric railway signal, H. V. and A. C. Miller, Bloomington and Aurora, Ill.
- 493,918, Electrically operated railway switch, P. Evans, Philadelphia, Pa.
- 493,789, Electric railway trolley, J. F. Saitz, assignor of two-thirds to T. A. Noble, Pittsburg, and F. G. Kay, Allegheny, Pa.
- 493,716, Conduit system for electric railways, E. Razelton, assignor of one-half to H. Ingersoll, Lansing, Mich.
- 493,907, Telephone, C. T. Bloomer, New York, N. Y.
- 494,278, Electric bell, F. W. Manger and O. H. Huebel, Brooklyn, N. Y.
- 494,344, Electric car controlling device, J. H. Neal, Boston, Mass.
- 494,281, Electric car fender, E. Rochester, Ottawa, Canada.
- 494,291, Electric heating apparatus, M. W. Dewey, assignor by mesne assignments to Dewey Electric Heating Company, Syracuse, N. Y.
- 494,285, Induction system of electrical heating, S. B. Jenkins, assignor to Butterfield-Mitchel Electric Company, Boston, Mass.
- 494,286, Apparatus for protecting buildings from lightning, J. B. L. Bartlett, Boston, Mass.
- 494,186, Lightning arrester, A. Wurts, assignor to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa.
- 494,146, Magnetic lock, A. E. Kitner, Painesville, O.
- 494,520, Electrical instrument for medical purposes, B. Y. Boyd, Wichita, Kas.
- 494,343, Motor, H. P. McAfee, Overton, Tex.
- 494,478, Motor driving gear, J. C. Henry, New York, N. Y.
- 494,337, Electric annunciating push button, J. King, Chicago, Ill.
- 494,199, Pyro electric battery, G. T. Hall, assignor to Hall Chemical and Gas Company, Chicago, Ill.
- 494,244, Pyrometer, E. Brown, Philadelphia, Pa.
- 494,301, Electrically-heated radiator, W. Mitchell, assignor to Butterfield-Mitchell Electric Heating Company, Boston, Mass.
- 494,345, Electric signaling apparatus, F. Pearce, New York, N. Y.
- 494,451, Electrical switch-lock, F. C. Weir and E. W. Harden, Cincinnati, O., said Harden assignor to said Weir.
- 494,185, Printing telegraph, J. E. Wright, New York, N. Y.
- 494,385, Telephone and signaling circuit, F. A. Pickernall and F. W. Dunbar, New Jersey and New York, assignors to American Telephone and Telegraph Company of New York.
- 494,479, Electric car truck, J. C. Henry, New York, N. Y.
- 494,849, Battery element separator, C. P. Elieson, New York, N. Y., assignor to F. A. Pallass, Oggebbio, Italy.
- 494,966, Circuit-closing clock, H. S. Page, Medford, assignor to E. D. Spear, Boston, Mass.
- 494,786, Automatic cut-out for electric signaling boxes, J. F. Mehren, Chicago, Ill., assignor to Gamewell Fore-Alarm Telegraph Company, New York and Chicago, Ill.
- 494,830, Electric circuit ground detector, E. Weston, Newark, N. J.
- 494,765, Means for closing electric circuits, H. L. Tyler, Corning, N. J.
- 494,836, Dynamo electric machine, A. S. Baxendale, Salangour, England.
- 494,739, Brusa supporter for dynamo electric machines, A. Ekstrom, Lynn, Mass., assignor to General Electric Company, New York.
- 494,657, Electric meter, M. E. Thompson, Boston, Mass.
- 494,978, Electric motor, F. B. Crocker and S. S. Wheeler, assignors to Wheeler Electric Company, of New York, N. Y.
- 494,781, Electric motor circuit controller, W. S. Hill, Hyde Park, assignor to W. S. Hill Electric Company, Boston, Mass.

- 494,627, Non-conducting handle for tableware, etc., A. Conradt, Middletown, Conn.
- 494,995, Cut-out for brush lamps, B. Adair and C. H. Klewer, Denver, Col.
- 494,828, Electrical measuring instrument, E. Weston, Newark, N. J.
- 494,587, Electric coal-mining machinery, E. C. Morgan, Chicago, Ill.
- 494,721, Electric railway trolley, E. Martyn, Detroit, Mich.
- 494,562, Telautograph, E. Gray, Highland Park, Ill.
- 494,827, Voltaic cell, E. Weston, Newark, N. J.
- 494,826, Recording volometer, E. Weston, Newark, N. J.

The Electric Trust.

It is now not more than fifteen years ago that electricity was at all an important force in the world, if the electric telegraph be excepted. Yet today a trust exists which, with excellent reason, if Mr. Olney should shirk his duty, hopes to control and absolutely hold all the rights and privileges of the most valuable mechanical applications of electricity and to maintain that hold against all comers by the force of the mighty "battalions of gold pieces" which are at its command. This hold is now partly due to patent rights, but mainly now and altogether hereafter to the power of money in the hands of an audacity that laughs at law and at the helpless complaints of the people.

The name of Mr. Thomas Edison, who is the cause of this monopoly and a considerable beneficiary by its operations, has caused many people to find excuses for this particular trust on the theory that Mr. Edison's inventions entitle him to a monopoly of their results. If this trust were organized with the benevolent purpose of giving Mr. Edison his great deserts, or, if this were one of its motives, the trust might have some excuse. But this is not the case. If there were no trust, if Mr. Edison were simply drawing his royalties and percentages for the use of his ideas by separate and competing companies, his income would be as large, if not larger. Far from increasing the use of his appliances, the trust diminishes their use by keeping up the prices; and of the profits which the trust makes, Mr. Edison gets but a small share, the rest going to increase fortunes already swollen by illegitimate speculation, to pay large salaries and otherwise to keep up the wasteful and extravagant business establishments which trust officials, with delightful irony, call "economies." Mr. Edison is not a business man. These business men take his name in vain by using it to crush out other inventors, with rights equal to Mr. Edison's, and to throttle legitimate competition, that would not interfere with Mr. Edison's gains, but with the ill-got gains of the greedy trust. Mr. Edison is nominally a director in the trust. He lends it his name and the first benefits of his work. He draws his dividends and his royalties. But in no true sense is he a prime mover in the trust.

The General Electric Company has one rival, the Westinghouse Electric and Manufacturing Company, organized upon the same lines and with the same purposes. A very harassing enemy it is but in common cause with its opponent when the public is concerned. It is in the natural course of events that these two will unite, forming a huge electric trust, and having a clear field for high prices and oppression. There has been venomous talk of this. It is the proud privilege of Mr. Olney to see to it that there be nothing left of either trust to unite with.

When the World's Fair asked for bids for the electric-lighting of all its buildings and grounds the General Electric Company, thinking that it would have no rival for such a large contract, yet wishing to conceal the appearance of monopoly, put in several bids for different amounts, each bid being presumably offered separately by the different concerns which are actually, but not outwardly, consolidated in the trust. For instance, the Thomson-Houston Company bid \$17.51 to \$18.51 the lamp; the Edison General Electric Company bid \$18.49 the lamp; the Brush Company bid \$17.77 the lamp; the Fort Wayne Electric Company, also a member of the trust, bid still lower.

All this looked very pleasant, and one would have thought that here was competition, with \$17 as about the market price for each lamp. But a Chicago concern, at the instance of the Westinghouse Company, put in a bid of \$5.49 the lamp. The managers of the Fair supposed at first that there must be some mistake. When they found out the truth, thanks to the rivalry of the Westinghouse Company, they were not in a very good humor with the General Electric Company. To

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put the matter in totals, the actual market price for the contract, giving a total profit above cost, was \$511,000 for the 93,040 lamps required. The General Electric Company had bid \$1,750,000, thinking that it had a monopoly. When the big trust got word of what the Westinghouse Company had done it changed its bid to \$853,000, or \$5.95 the lamp. But it was too late. The grab of \$1,000,000 had failed.

This is an illustration of what the public may always expect. No one supposes that it was benevolence or honesty on the part of the Westinghouse Company that made it bid so low. The motive was to expose the General Electric Trust and to cheat it out of the \$1,000,000 of which it was trying to rob the management of the Fair. And if the two trusts can come to any sort of an understanding they will consolidate, as, with the Anti-Trust law in abeyance, these opportunities for robbery could be limited only by the point at which electric supplies could be too expensive for the public to buy.

This matter of electric trusts needs Mr. Olney's immediate and urgent attention. They are delaying the universal use of electric power. They are forcing the people to pay exorbitant prices. They are benefiting none but a few rich men. And each year their hold grows stronger.

Such, Mr. Olney, are the facts. And here, sir, is the law:

Extracts from an act to protect trade and commerce against unlawful restraints and monopolists. *Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled:*

Sec. 1. Every contract, combination in the form of trust or otherwise, or conspiracy or restraint of trade or commerce among the several States, or with foreign nations, is hereby declared to be illegal.

Sec. 2. Every person who shall monopolize or attempt to monopolize, or combine or conspire with any other person or persons to monopolize any part of the trade or commerce among the several States or with foreign nations, shall be deemed guilty of a misdemeanor, and, on conviction thereof, shall be punished by a fine not exceeding \$5,000 or by imprisonment not exceeding one year, or by both said punishments, in the discretion of the Court.

Sec. 3. Every contract, combination in the form of trust or otherwise, or conspiracy in restraint of trade or commerce in any Territory of the United States or the District of Columbia, * * * is hereby declared illegal.

Sec. 4. The several circuit courts of the United States are hereby invested with jurisdiction to prevent and restrain violations of this act, and it shall be the duty of the several district attorneys of the United States in their respective districts, under the direction of the Attorney-General, to institute proceedings in equity to prevent and restrain such violations.

Approved July 2, 1890.—*N. Y. World.*

The St. Louis Electric Club.

The Electric Club has added a piano, violin and other musical instruments to their house furnishings, and on Saturday evenings the members have social and scientific gatherings and have developed decided talents in both directions.

Many members lunch here daily and with an afternoon tooth-pick or fragrant Havana help digestion with music or pleasant converse. We dropped in casually and found Col. Allen occupying his favorite rocking chair and softly whistling the "Light of other Days." Fowler, the patent lawyer, and Rothehamel, his client, were in a corner dissecting the evidence of one of Edison's witnesses, in the Incandescent Lamp cases, and from the look of triumph on their faces seemed to have found a weak spot in the testimony.

Flower, the oleaginous, was disporting his graceful length of limb on one of the sofas, puffing slowly on his cigar, ruminating, no doubt, on his last conquest, and as no ladies were present, evidently thinking that he was "wasting his sweetness on the desert air."

Alf. Ernstein was pacing restlessly up and down the carpet with speculation in his eye.

Lampel, of the Interstate Alphabetical Company, was quoting Shakspeare to his friend Bryan, and advising him to laugh and grow fat, instead of looking "fit for treason, stratagem and spoils."

Wagner and Percival were overheard discussing "ohms and octaves," "amperes and flats," and a mixed jumble of musical and electrical terms.

Evidently, not only the tail of Franklin's kite, but the mantle of his great namesake, and probable relative, the famous Master of Bayreuth, must have fallen on Wagner's broad shoulders. Percival also uses music in his electrical experiments and claims that he can produce any "wave sound" if he can only strike the right number of vibrations which cause it. *On dit*, that Wagner and Percival are composing an "Electric Waltz" to be dedicated to their club.

Burgess, the club scribe, is ambi-dexterated and sits at a table with a sharp-pointed pencil in each hand and scribbles social and scientific items at one and the same time.

With a backward shake of the head, as if tossing off the cares of a mighty corporation, J. I. Ayer enters and is greeted with a, "Hello, Jimmy" from his fellow members, with whom he is immensely popular.

Godfrey, of the New York Insulated Wire Company, saunters in leaning on the arm of his friend Ruble—the former on his way to Hot Springs—the latter just returned from there. Godfrey is looking pale and thin and is paying the penalty of a fast life. Steady, gentlemen—"Honi soit qui mal y pense"—by "fast life" we only mean unlimited trips on the Limited Mail between New York and Chicago. Godfrey notes the peculiar smile on everybody's face when Hot Springs is mentioned, and not being a citizen of the metropolis of the west, is not aware that the Karlsbad of America (*vide* advertisements of Missouri Pacific Railroad) is only a suburban resort of St. Louis, to which we always go when troubled with—a cold in the head. However, in the words of the Catholic Church, the members, one and all, unite in wishing him "a speedy recovery or grace of a happy death."

In the club dining room Capt. McCullough is telling some of his *religious* experiences and is amply repaid by the roars of laughter each anecdote evokes.

But hark! "there is music in the air." "Uncle" Shultz of Belting fame has touched the violin strings with his magic bow and is playing the "Arkansas Traveler" in a manner that would do credit to Ole Bull. Uncle Shultz, attired in his finest of broadcloth, is a perfect picture of the gentleman of the old school. He is the life and soul of the club, as a raconteur is immense, and can give Chauncey Depew pointers on an after-dinner speech.

Perhaps we had better stop right here or some member of the club may go gunning for us with a heavy club, but as the writer will be on his way to Pittsburg when this goes to press, we can say "au revoir" and leave the angry clubite to the tender mercies of our fighting editor.

You

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D. O. IVES,
Gen'l Pass. and Tkt. Agt.,
St. Louis, Mo.

Our editorial sanctum is directly across the hall from the business office of Jno. B. O'Meara, Lieutenant-Governor of Missouri. During the warm spells we are obliged to keep our doors open, and as they do likewise in the Governor's office, we are treated to considerable political slate-making and breaking. His able assistants, the Rev. Dr. Shannon and His Irreverence Chatard, are used to this sort of thing; but if we mix up politics and electricity we are somewhat excusable.

When you visit Chicago do not forget to call on the old-time friend of electrical workers, John E. Fitzpatrick, 204 Washington street, Chicago.

We call the attention of our readers to the following report of the Gas and Electric Building and Loan Association of St. Louis, and hope that our members, here and elsewhere, will give this subject due consideration. By investing a few dollars a month in a good building association they can, in a few years, own their own homes.

FINANCIAL STATEMENT.

The Gas and Electric Building and Loan Association, for Twenty-Four Months, Ending March 20, 1893.

RESOURCES.	
Loans in force	\$63,450 00
Charter and books	887 27
Cash deposited in bank	3,868 12
Due from members	2,908 98
Bills and accounts receivable	846 85
Real Estate	2,600 00
Total resources	\$73,761 22
LIABILITIES.	
Dues to date, 1st series, 1777 shares, 24 months	\$42,648 00
Dues to date, 2d series, 395 shares, 7 months	2,765 00
Due withdrawing members	470 00
Accounts payable	92 40
Bills payable	21,640 00
Interest due on bills payable	187 75
Amount overpaid	265 00
Due borrowers	792 75
Due directors and committees	145 00
Total liabilities	\$69,005 90
GAINS.	
Premiums on loans	\$ 2,276 52
Interest on loans	4,541 43
Fines	318 63
Transfer fees	100 00
Rent	264 74
Gross gains	\$ 7,496 32
Less interest paid and accrued	\$1,415 97
Less expenses paid and accrued	1,355 03
Net gain of 24 months	4,755 32
Total liabilities	\$73,761 22
Gain per share, 1st series	\$ 2 63
Gain per share, 2d series	22
Value per share, 1st series, 24 months ..	\$ 26 63
Value per share, 2d series, 7 months ..	7 22
GEO. T. THOMPSON, A. ROSS, President.	
Secretary. L. J. W. WALL, Vice President.	
S. B. PIKE, Treasurer.	

You

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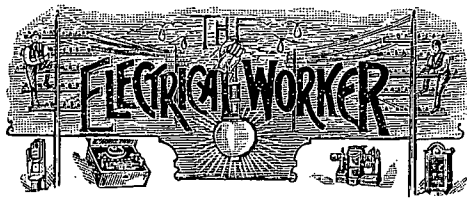
The Atlantic Hotel, corner Van Buren and Sherman streets, Chicago, is quite a headquarters for visiting members of the N. B. E. W. The handsome manner in which the Cummings Brothers, proprietors of the cosy hostelry, entertained the delegates to our convention last fall made them many friends, and their liberal treatment of guests is in strong contrast to the exorbitant demands made by most hotels and boarding houses of the Windy City. If visiting the World's Fair, be sure and call, and you will meet many of the brethren.

Electric Notes.

A considerable freight business is being carried on by an electric railroad in Maryland, operating 18 miles of track in a good farming country which is not reached by steam roads. The cars used have a capacity of five tons.

For surveying wrecks, seining fish, reconnoitering for concealed torpedoes, or most any submarine work, the incandescent electric lamp, with specially insulated socket and cable, is bound to be extensively used in the future. Experiments recently carried on off Toulon, France, showed excellent results. Lamps were burned at a depth of six fathoms, which brightly illuminated 100 feet of ocean bed.

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OFFICIAL JOURNAL OF THE
National Brotherhood Electrical Workers.
PUBLISHED MONTHLY.

J. T. KELLY, SEC'Y & TREAS.,
PUBLISHER.
904 Olive St., St. Louis, Mo.

ENTERED AT THE POST OFFICE, AT ST. LOUIS, MO., AS SECOND-
CLASS MATTER IN MARCH, 1893.

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SUBSCRIPTION. \$1.00 PER YEAR IN ADVANCE.

As THE ELECTRICAL WORKER reaches the men who do the work, and recommend or order the material, its value as an advertising medium can be readily appreciated.

St. Louis, Mo., April, 1893.

Advertising Rates on Application.

SUPT. L. W. DAVIS, of the Cincinnati Edison Company, has been arrested on a warrant sworn out by a member of the Brotherhood of Electrical Workers, who was discharged by Davis for belonging to the Union. This is the first case under the Ohio law which makes it a criminal offense to discharge employes for belonging to a labor organization. The law was passed by the Ohio General Assembly April 14, 1892. Ex-Superior Court Judge H. D. Peck is attorney for the Union, and on his advice the warrant was sworn out by A. J. Roberts, one of the discharged employes. The act under which the warrant was issued is found on page 269 of the 1889 Ohio Laws, and reads as follows:

An Act—To protect employes and guarantee their rights to belong to labor organizations.

Section 1. Be it enacted by the General Assembly of the State of Ohio, That it shall be unlawful for any individual or member of any firm, or agent, or officer or employe of any company or corporation, to prevent employes from forming, joining and belonging to any lawful labor organization; and any such individual, member, agent, officer or employe who coerces or attempts to coerce employes by discharging or threatening to discharge from their employ or the employ of any firm, company or corporation, because of their connection with such lawful labor organization, shall be guilty of a misdemeanor, and upon conviction thereof in any court of competent jurisdiction, shall be fined in any sum not exceeding \$100, or imprisoned for not more than six months, or both, in the discretion of the Court.

Section 2. This act shall take effect and be in force from and after its passage.

The warrant under which Davis was arrested reads as follows:

L. W. Davis, being superintendent and engineer of the Cincinnati Edison Electric Company, did

unlawfully prevent one A. J. Roberts, who was then and there in the employ of the Cincinnati Edison Electric Company, from belonging to the Brotherhood of Electrical Workers, No. 13, of Cincinnati, a lawful labor organization, said A. J. Roberts being then and there a member of the Brotherhood of Electrical Workers, No. 13, of Cincinnati, and did unlawfully coerce and attempt to coerce said A. J. Roberts from belonging to said labor organization, and discharging and threatening to discharge said A. J. Roberts from the employ of said The Cincinnati Edison Electric Company, because of the said A. J. Roberts' connection with said labor organization, and did then and there discharge said A. J. Roberts from the employ of said Cincinnati Edison Electric Company, as aforesaid, because of his membership in said labor organization as aforesaid.

We congratulate Ohio on being one of the first States in the Union to recognize the fact that workingmen have some rights that the law and capitalists are bound to respect, and that labor must have an equal representation with capital in all questions of law and justice.

The railroads' cases in northern Ohio, and the Electrical Workers' in southern Ohio, will be watched with interest by every labor organization in the world.

ALLEGHENY CITY, PA.,

April 10, 1893.

National Brotherhood Electrical Workers,
greeting:

Friends and Brethren: Not being able to speak to you through the medium of our journal in the last issue, I will try and make up in the next. I do not believe it is necessary to call your attention to the fact that still a great many evils remain in our ranks and must be remedied. I received letters day after day where appeals are made to me as Grand President to pass upon certain acts enacted by the Locals believed to be infringements on our constitution, but thus far I have not seen a single one that was not entirely explained by the constitution. I would like to ask all the local unions to post a copy of all changes made and new rules adopted at their places of meeting and also at their headquarters, in places where they have such. It would relieve me of a good deal of work and give me a chance to put the time so consumed into organizing.

I see in the last issue of our journal that Mr. James I. Ayers ex-President of the Electric Light Association, at the convention at St. Louis, expresses himself about the National Brotherhood being able to do a great amount of good, if maintained on the high plane outlined, stating also that if the effort was honest, meaning the principle of the Brotherhood, in educating their members, they were willing to aid us. I wish to extend to him my sincere thanks for the notice taken of our humble efforts, and also call his attention to the fact that we, the Electrical Workers, officers and members, have been doing our utmost to better the condition of the Electrical Workers both morally and socially, and to educate them to a higher standard. But I also call his attention to the fact that we have received very little encouragement. Instead of trying to aid us employers have used

every effort in their power to retard the work, wherever possible. This does not apply to all, for there are honorable exceptions. I have found that the ignorance of petty officers, men who hold position either through political influence or their relationship to stockholders, are the only ones who are kicking up disturbances. For example: A man by the name of Baker, holding the position of Superintendent with the Southern New England Telephone Company, in the State of Connecticut, tried to make the men working under him sign a contract such as I have never seen before and hope will never see again. The ignorance displayed by a man of his stamp is to be pitied, as he intended to terrorize the men and have cheap labor to make himself solid with the company and increase his own wages. That this can never be done under such circumstances any reasonable man can see. A man bound down by circumstances at the time may have to give in to such demands, but surely will lose all interest in his work and only be waiting to be revenged.

If the electric companies are willing to aid us, now is a good time for them to show their hand, for when we are thoroughly organized we will hardly need any outside aid. We are so far advanced now that we, with a little assistance, could establish libraries and schools in every city.

We have some members who are incompetent, through drinking or other vices, and the sooner we get rid of them the better for our trade at large. Another point at issue is the apprentice system and the examination of electrical workers before a board of practical men. This is essential to the welfare of electric works, for the system we have at present is not an inducement for men to try and learn the difficult part of our work, as the pay is not equivalent and the places where better wages are paid are not sufficient to make it an object for them to learn. The general rule at present makes no distinction between the poor men and the good men. Therefore, it is more to the interest of the men to pretend not to know anything about it, as that will get them out of a good deal of difficult and dangerous work; while the man who knows his business will be called upon to do the work which oftentimes is an imposition on him, the poor mechanic will rest himself and think what a fool he is; but when pay comes around he receives as much pay as the man who probably done double the amount of work that he did. Now, as companies or their officers can know but very little about this, it shows clearly that it is for their interest to have every man working for them belonging to the Brotherhood and so come under their jurisdiction, for they know better than any one else what a man can do, the interest he takes in his work and the chances to better himself. We ought to have at least three different grades—the apprentice, or helper, the experienced apprentice and the electrical worker. Before a man working at our trade should get a card as an experienced electrical



Page

worker, a practical examination ought to be demanded of each and every one to pass the different degrees and the wages ought to correspond with his degree. If this idea was followed up it would be a great encouragement for men to learn all they could about their trade, as they would know that their wages would depend on their competency. In conclusion, I would ask the Electric Light Association to aid and assist us in our efforts to make our journal a success financially as well as in education. To the members of the National Brotherhood, I wish to state and call their attention to it, that it is for the benefit of the Brotherhood to patronize such firms wherever possible, who, by advertising in our journal, aid us. I hope that there will be peace and harmony between us and our employers, as harmonious work is essential for both and will benefit both the electric worker and our employer. Once more I will call the attention of the brethren to the fact that it is for their benefit to try and organize every city and village throughout the country; and as at our last convention it was passed that every member of the Brotherhood has a right to organize a lodge wherever he may be, it makes each and every one of us an organizer. Therefore it becomes our duty as organizers to try, to the best of our ability, to band together all the electric workers of the United States. Hoping to hear some good results in the near future from all over the country, I remain, fraternally yours,

HENRY MILLER, G. P.

April - Personal. 1893

John Sutter, who has been custodian of the funds of No. 1 since the Union was first organized, has also gone into business, having formed a partnership with John Hisserich, under the firm name of Sutter & Hisserich.

John Hisserich, the able Financial Secretary of No. 1, has severed his connection with the telephone company and has gone into the construction business. His many friends will wish him success in his new undertaking, and the fact that he is now a "boss" will not enlarge the size of his cranium. He will still remain the same genial "Johnnie."

President Dan Lafferty, of Local Union No. 1, makes a very imposing figure when swinging the gavel, and, judging from his breadth of shoulders and his 250-pound avoirdupois, could swing a blacksmith's anvil with equal grace and ease. When he speaks the boys all pay attention, as they do not relish the idea of gliding down three flights of stairs with an initial power of about 10,000 volts. Dan is a hustler, and No. 1 shows the effects of his able administration.

On our recent visit to Chicago we called on our old friend, Mike Umbdenstock, the genial President of the Globe Lithographing and Printing Company, and by him was introduced to Mrs. K. F. Miller, the charming editress of the *Industrial Magazine*, a monthly journal that is rapidly forcing its way to the front. Mrs. Miller is handsome, lively, a great favorite in society and a shrewd business manager, and in the near future bids fair to become the Mrs. Frank Leslie of the West. We sincerely wish her the good luck she so richly deserves.

"Two souls with but a single thought, two hearts that beat as one"—meaning, of course, Bro. Michael A. Walsh and Miss Mary E. Halloran, whose nuptials are "on the cards" for April 26. Bro. Walsh is one of the best known men in the Brotherhood, a general favorite with all, and has the hearty congratulations of his numerous friends.

His fiancée is a most charming and estimable young lady and well beloved by a choice circle of relatives and friends. A wedding trip to the Ozark Mountains is talked of, and no doubt the pleasures of their honeymoon will be enhanced by communing with the natural beauties and pure air of the famous Ozarks. Best wishes, Bro. Walsh, and may your honeymoon last a lifetime.

Charles W. Phipps, who has grown up in the factory of The Brush Electric Company, having started in prior to 1880 as a boy, and who has represented The Brush Company in construction in England and on the Continent, and China and Japan, and in the eastern portion of the country, headquarters in New York, has recently been appointed superintendent of the Brush Company. Mr. Phipps is noted for his energy and push, his thorough knowledge of the Brush apparatus, and his ability as an engineer. He is a man who is very popular with all those who have come in contact with him. At the peril of his own life he rescued a number of sailors in the bay at Yokohama, Japan. His action in climbing the arc light post at the corner of Sixth avenue and Thirty-third street, New York, during a storm, and in the presence of several thousand people and rescuing a lineman of the United States Electric Illuminating Company, was heroic, and gave him a deserved reputation of being a brave man. Any one with such a record will no doubt succeed anywhere. Charles N. Black, a graduate of Princeton, and one of Prof. C. F. Brackett's most promising pupils, has been appointed assistant superintendent. Mr. Black, after leaving Princeton, secured a position in the Brush factory, and with hard work, combined with his knowledge and ability, has secured just promotion.

Electricity Building, Columbian World's Exposition.

Ere our next issue goes to press the World's Columbian Exposition will be fairly started as the "Greatest Show on Earth," either past or present, outrivaling the opening of Solomon's Temple, and even surpassing the wonderful pictures of Aladdin's Beautiful Palace, which a generation or two ago was considered the acme of human imaginative gorgeousness. Could the author of the Arabian Nights revisit Mother Earth, drop his 50 cents in the slot and receive a coupon entitling him to admission to the World's Fair, he would admit that Aladdin's Wonderful Lamp was a penny dip in comparison with the arc and incandescent lamps that will turn night into day at the Palace of Electricity. The marvels of electricity here displayed would make him or Jules Verne turn green with envy. As a general rule, such buildings show up fairer in a picture than in reality, but in this case the real surpasses the ideal.

As most of the pictures of the World's Fair buildings have become familiar to our readers, we will only reproduce the Electrical Building, as it is of paramount interest to all electrical workers.

Trade Notes.

The Van Nort Bros. have about completed their contract with the Medart Pulley Company, which has one of the finest individual plants in the city. With Geo. J. Percival as electrical engineer and superintendent and the Van Nort Bros. as contractors it could scarcely be otherwise.

Ed. T. Cooke, President of the St. Louis Electrical Exchange, has purchased 1408 Chestnut street, thoroughly overhauled the building, put in an entire new front and has now one of the handsomest and most convenient places in the city for electrical business. He has several large contracts on hand and is figuring on several new ones.

The Patrick & Carter Company, of Philadelphia, have placed upon the market a neatly designed pocket buzzer, which our illustrations show in full size. It is small, made entirely of metal, and is nickel-plated. It gives a loud, clear, pleasant sound, and is also adapted to the same uses as the larger buzzers. It is well made and finished, reasonable in price, is almost an indispensable circuit tester, and every electric bell-fitter and wireman should have one.

The Pioneer Armature Works, room 415, 195 to 199 South Canal street, Chicago, are making a specialty of rewinding fields and armatures, renovating commutators and making other repairs on electrical machinery. They make an exclusive business of this line, and are prepared to guarantee good work at the best prices. They also make a special point of getting their work done with the utmost dispatch. Immediately an armature or other piece of machinery is received it is repaired, and in this way they have acquired quite a reputation.

The Bryant Electric Company, of Bridgeport, Conn., manufacturer of the Bryant switch, is now nicely settled in its new factory, which occupies a three-story building. The company has placed considerable new machinery, and with enlarged quarters in all departments will have double the capacity of its old works. Their Western branch, under the efficient management of Thos. G. Grier, makes a fine display of their wares at 1522 Monadnock Building, Chicago, Ill., and are doing more than their share of business.

The Chicago Insulated Wire Company, under Mr. T. C. Turley's management, has been increasing its capacity at their factory at Sycamore, and are now making it interesting for competitors. They have recently secured some very heavy contracts, and are figuring on several new ones.

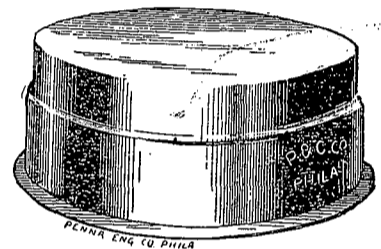


Fig. 1.

Patrick & Carter Company's Pocket Buzzer, Full Size.

Cushing & Morse, general agents for Day's Kerite, are prepared to quote excellently favorable terms upon high-grade rubber-covered wires and cables. The Kerite wire has long been a favorite, and from the large number of orders recently received shows that it is still leading.

The Eagle Manufacturing Company, of Chicago, has recently put an improved annunciator on the market, which is having a large sale. They also manufacture bells, push buttons and other electrical house goods; also a neat letter box.

Eicks & Robinson, patent experts, though young in years, are old in experience, having grown up in the patent business. They have for several years made a specialty of drawings and specifications for electrical patents. They also obtain caveats and trade marks for the United States and foreign patent offices, and perfect in complete inventions.

The Commercial Electrical Supply Company has just entered the field with a complete stock of electrical wares of all kinds. Unlike most St. Louis supply houses this is no branch establishment, but is a home institution, backed by plenty of capital and under the management of experienced people in electrical specialties. Their offices and show rooms at 821 Pine street, will be found to contain an immense assortment and stock of everything in the electrical line, and customers will not be told that they are just out of switches, wires, cut-offs, etc. Call and examine their stock.

The Stagl Electrical Engineering Company has removed from its old stand on Eighth street to more commodious quarters at 1117 Locust street, its business having increased so much of late that it made the change necessary.

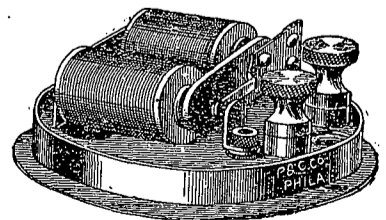


Fig. 2.

Patrick & Carter Company's Pocket Buzzer, Shell Removed.

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CORRESPONDENCE.

[The Press Secretary, though an officer of the Local Union, is really a resident correspondent of the *ELECTRIC WORKER*, and should keep his paper thoroughly posted on all matters pertaining to the electrical industry in the vicinity he represents. New plants, extensions of old ones, new electric roads, state of trade, new ideas, electrical novelties and accidents are a few of the topics to report on. Please notice that the minutes of the meetings are not required, except the report of new officers, and such matter as may be of general interest to all members.]

LOCAL UNION NO. 1.

St. Louis, April 10, 1893.

Editor *ELECTRICAL WORKER*:

Owing to various reasons I was not able to attend our last meeting, but from all accounts the meeting was a very interesting one, as eight new members were initiated. The boys in our line of business who do not belong to our Union, and they are scarce in this city, are beginning to fall in line, which is a step they will never regret. Now, we are to parade on April 30, and the indications are favorable for a general turnout; what few are left outside of our grand circuit, will see their mistake and join our ranks. The parade, I think, is a move in the right direction, and will astonish a few who have not kept themselves posted on the progress the electrical workers are making. They should read *THE ELECTRICAL WORKER* (a paper which should be read by every electrical worker) and see what Jas. I. Ayer has to say about our organization. They will see that they are standing in their own light. We should like to hear from more of the general managers. I am sure that they will agree with Mr. Ayer in his estimation of the Brotherhood.

Bro. M. A. Walsh has not been feeling very well for a few days. Some of the boys say he is not pleased with the result of the late city election. I believe I heard him say something about his hopes all blasted, and that Democrats were not in it. But what puzzled me the most was something about a parlor suit. Now, Mickey, I would not have given it away, but it is the only way I can get even with you.

I have just been reading *THE ELECTRICAL WORKER*, and must say that I can find more interesting news in it than in any other electrical paper. I am always anxious to know how the boys are getting along all over the country, and there is no other paper that gives the desired information except our official journal, *THE ELECTRICAL WORKER*. For the benefit of those who may not be personally acquainted with Bro. Kelly, I can assure you that we have the right man in the right place, and you will find him always ready and willing to lend a helping hand to advance the interests of the N. B. E. W., and if ever you should meet him you will find him a gentleman and a jolly good fellow.

As this is my first appearance in the *E. W.*, I will close for this time, but will be on deck for next issue, for you will find me with the Union, first, last and all the time. Fraternally yours,

W. B. BOWLIN,
Press Sec.

LOCAL UNION No. 3.

New York, April 10, 1893.

Editor *ELECTRICAL WORKER*:

DEAR SIR—To-day I visited the plant of the Manhattan and East River Electric Co. I wish you could see the way the thirty or more men they had at work were trying to kill time at from \$1.50 to \$1.75 per day. My visit was for the purpose of finding out who were at work there, and see if I could run across any of the old boys and have a persuasive talk with them, and try and capture a few, if I could find any worth of being members. I must say that I never expected to see a plant so completely in possession of farmers. Some had

tusks, some had bristles, all had hayseeds, but none had any practical knowledge of the business. You can judge what one of them can do, when a pair of climbers lay at the foot of a pole, and when ordered to go up and fasten a line, he had to call two or three men to help raise a ladder, and then rigs a boatswain's chair for ten minutes' work. That settled it. I followed two of the most intelligent looking men I saw, and got talking with them, and I found that one had started in the business last night for the first time, but did not like it, and was only trying to catch a few days' pay; the other was a jack-at-all-trades, who had worked at nearly every branch of the electrical business for from half a day to two weeks, and by his talk one would think that he aspired to be president of the company next, and from my observations I predict that it is not impossible. And all this in a city where there are plenty of good men, who only ask decent living wages. I have interested three reporters in this little difficulty between the Board of Control and those companies who ignore Union help, and should they be compelled to put their lines underground, they will have to come to time, and if the linemen will act in harmony with the inside men we will capture the fort.

Work here is starting up, and the prospects are bright for a good season, which is much needed by many of our members, who have been out of work for some time.

At our meeting on March 16, it was decided that Local No. 3 should apply for re-admission to the different Trades Board. This action was brought about by the Contractors' Association not living up to their agreement of February 1, and as the Union thought it was getting the worst of it, it was decided by a unanimous vote to cancel the agreement.

Our Union has unanimously indorsed the candidacy of Frank W. Balmes, of the United Wood Carvers Association, for the position of Contract Labor Inspector for this port. Mr. Balmes is president of his organization, and a delegate to the Central Labor Union, and has been indorsed by a great many Labor Unions, including several central bodies. Our secretary has been instructed to write to Hon. John G. Carlisle, Secretary of the Treasury, in his behalf. This office is an important one to the laboring masses and should be filled by one who has sympathy with them.

I hope that you will compel all the locals to furnish the necessary information for the directory of Local Unions, which is published in the *ELECTRICAL WORKER*, and have them state when and where they meet, as I have had a number of complaints from members who are traveling from city to city, and would like to stop and visit the Local Union if they had known when and where it met. This would be the means of cultivating a friendly feeling and give members an idea how other Unions conduct their business. I would also ask what is the matter with some of the secretaries. Have they no home or address?

LESTER C. HAMLIN.

542 East 17th St.

LOCAL UNION NO. 4.

New Orleans, April 10, 1893.

Editor *ELECTRICAL WORKER*:

At our last meeting, Wednesday April 5, we had the pleasure of presenting our venerable president, W. Moake, a gold badge of the Brotherhood. He was a little surprised at first but soon recovered himself, and thanked us in a remarkable speech, delivered in his characteristic style. Although Bro. Moake is one of the oldest men in the business he is as bright and active as a boy of sixteen. No. 4 can justly feel proud of her noble president, as she owes nearly all that she is today to his untiring efforts.

The electric cars were put in operation at Baton Rouge on April 5. The president of the road drove the silver spike, and at a given signal the cars started and glided smoothly over the track.

J. J. VIVES.

LOCAL UNION NO. 5.

Nashville, April 6, 1893.

"Hurrah" for the *ELECTRICAL WORKER*! The March issue was far beyond our most sanguine expectations. The contents of it were devoured (ads. and all), from the initial page to the back cover, and many were the compliments bestowed on the "man at the helm" (Bro. Kelly) for giving us such a newsy journal. The unanimous wish of No. 5 is that success and long life ever be its portion, and that its editor will always have a goodly supply of cordwood and vegetables in exchange for subscriptions.

No. 5 is moving on in the even tenor of its way, and is gaining new members every meeting. Bro. Morrison's nose glows with renewed brilliancy as he rakes in the initiation fees at the rate of \$2 per glow. But enough of Bro. Morrison, as I have not entirely recovered from a late encounter with that worthy concerning a reference to his "incandescent proboscis" in the February issue.

The Cumberland Lighting and Power Company has been awarded the contract to light the city for a term of five years, at the rate of 26 cents per light per night for the first two years and 25 cents thereafter. The city reserves the right to cancel the contract at the expiration of the first two years if so disposed. The company will begin at once to overhaul its lines and put up 100 additional street lamps.

Trade is good, with splendid prospects for the year.

Our new power plant is all that art and modern improvements can make it, and is a model plant from boiler to dynamo.

Our last meeting, which was held March 22, was one of the most interesting we ever had. We initiated one new member and gave an informal reception to Messrs. Adams, Williams and McEwen, of No. 9, Chicago. Bro. Williams added greatly to the meeting with an interesting talk on "Union Progress, and a Way of Promoting It." I have been trying to get the boys to talk for the good of the union. They sit and wait for some one else to start the ball rolling, and the consequence is there is no talking done that amounts to anything. Bro. Williams woke them up, however, and I hope to hear from them all next meeting.

At the conclusion of the regular business of the meeting the following programme was rendered: Address, President Gus Prang; vocal solo, "We've Both Been There Before," B. H. Smith; feats of parlor magic, E. Cantrell; instrumental solo, P. H. Langdon; reading, "Why Do I Have to Work?" C. Wilcox; recitation, "Casabianca," Lee Briggs; high and lofty kicking, "the only" Bender; silence and fun, "Dad" Borum; collection of dues, "Blossom" Morrison.

This is all for the present; will write more next month. Fraternally,
P. H. LANGDON,
Press Sec.

LOCAL UNION NO. 7.

Springfield, Mass., April 6, 1893.

Editor *ELECTRICAL WORKER*:

DEAR SIR—No. 7 has been very slow in sending in a letter to your valuable journal, but in future you can expect to hear from us right along. Business has been very dull this winter on account of the severe weather, but things look much brighter now, and all the boys are working.

The Electric Light Company is going to move its plant to Indian Orchard, about seven miles out of the city, to use the water-power in that place, which will make all summer's work, and there is talk of extending the street railroad some sixteen miles. The telegraph company is going to do good business rebuilding. I am sorry to state that two of our officers took out traveling cards, and left us last week; but both Bros. Condon and Wyatt are "hustlers", and No. 1 Union men. We would be pleased to have any of the brothers come this way, and we will give them a cordial reception. With best wishes for the prosperity of the N. B. E. W.,

I am truly yours,

M. FARRELL,
Press Sec.

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LOCAL UNION NO. 8.

TOLEDO, O., April 9, 1893.

Editor ELECTRICAL WORKER:

DEAR SIR—It was very encouraging to see so many correspondents in the last issue of the journal. It shows that the locals appreciate it. But I think Press Secretaries should remember that it has a higher and nobler object in view than to chronicle the characteristics of brother members, and should govern their writings accordingly. They can do themselves more honor, help the paper more materially and enlighten their fellow-craftsmen by contributing subjects on electricity, either their theory or experiments in any particular branch or branches of the craft which may be their daily occupations. Electrical workers, as a rule, are very eager to learn something new about the latest improvements on and experiments with this modern science and naturally look to their journal and Press Secretaries for that information, and it becomes the duty for every local to select the right man for the right place, so that they may be properly represented before readers of THE ELECTRICAL WORKER.

We should note the kind words of President Ayer, of the National Electric Light Association, before that body at their annual meeting in St. Louis. It is just such managers who make electric light plants a success. May he long remain a favorite with the electric boys of St. Louis.

But a few words more to the locals: Beware of the kind of timber you put in your offices. Keep down the political agitator and the religious crank. Let them fill no office, for they are always agitating a strike or something that will give them notoriety and cause your downfall.

Hoping that the Press Secretaries shall grant my requests and that the locals will excuse me for my advice, I remain, yours fraternally,

O. E. McMAHON,
Press Secretary.

LOCAL UNION NO. 10.

INDIANAPOLIS, IND., April 10, 1893.

Editor ELECTRICAL WORKER:

Local No. 10 met as usual last Monday evening, April 3, President T. B. French in the chair. Officers all present except Bro. Dorsey. He is excusable, though, as he had to go out with the ladies.

Bro. Armentrout was admitted by card.

Several communications were received from J. H. Sapps, No. 9, of Chicago, and J. T. Kelly, G. S. T., of St. Louis.

A committee was sent out to confer with the different construction companies and settle upon what wages we are to receive and hours we are to work for this season for inside wiremen.

Bro. Bledsoe and Bro. Peck, from No. 11, of Terre Haute, were in this city on their way to Cincinnati. They report everything fair down the line.

No. 10 has the only scheme to keep the members in regular attendance. Although a trifle expensive to some, it works wonderfully well.

Bro. William Brattley is on the sick list. Nothing serious, I think.

A couple of agents are here experimenting with a new telephone. Just what success they will meet with I can not say.

There is a new amalgamation of trades-unions talked of here, being started by the carpenters' locals.

The Western Union Telegraph is surely contemplating some big work here, as the other day they received four carloads of 55 to 65-foot poles.

At the last meeting of the City Council the subject of wire inspector was brought up, but the city plead poverty. Action will be taken in a short time, though, I think.

Local No 10 meets on Monday at 33½ South Illinois street.

Visiting brothers welcome. Fraternally,
D. A. GREENWOOD,
Press Sec.

LOCAL UNION No. 11.

TERRE HAUTE, IND., April 12, 1893.

Editor ELECTRICAL WORKER:

DEAR SIR—Local Union No. 11 held its regular meeting last night. Meeting was called to order by Bro. Schaffer. All officers were present except President Davis. The ballot being favorable on the application of George Cooper, he was duly initiated and took a seat in the meeting. The attendance has been very small at our meetings lately, several of our member being absent from the city. Bro. Frank Beale, who left for Chicago with the Western Union people, was suspended at our last meeting for non-payment of dues. He was in Chicago when last heard of, and I hope the brothers there will look out for him. Bros. Grant, Peck and H. Bledsoe have returned, Brother Bledsoe, having been sent for to take his old position. He stated that he visited Local No. 10 at their meeting on the 3d inst., and was very much pleased with the interest they take in the Brotherhood. Bro. Hugh O'Donnell was appointed City Electrician for the fire alarm telegraph by the City Council at its regular meeting, March 21st. Bro. R. McDonald has left for Chicago, where he will visit relatives for a week or two. The Westinghouse Company installed an electric light plant in our new Union Depot, consisting of one 300 light dynamo and one 100 horse-power Atlas engine. The building is wired for 500 lights. Bro. R. W. Moore is doing all the electrical work in the city at present, business being very slack in that line for this time of the year. The members of No. 11 are more than pleased with our new journal and await patiently its coming every month. We all wish it best of success. No. 11 would like to hear from Bro. George Johnson. He was last heard of in Evansville. We will be obliged to any brother who can inform us of his whereabouts.

Fraternally yours,
W. H. SCHAEFFER,
Press Sec.

LOCAL UNION NO 12.

EVANSVILLE, IND., April 8, 1893.

Editor ELECTRICAL WORKER:

Local Union No. 12 met as usual on last Tuesday evening. Applications of Masston Martin, foreman of street railway, and R. M. Hayes, were presented for membership. Both were accepted and initiated. No. 12 emptied its treasury to assist the needy brothers of Toledo, and with the money sent by it goes the voice of the entire union in this wish, that the striking brothers may come out of the struggle victorious.

Bro. Harry Brown, who has been sick all winter, is now again able to be on duty and was also able to take good part in our grandest of balls. All the brothers made a hard fight to get the nickel-plated lineman's tool that we gave to the brother selling the greatest number of tickets, but "Shorty" got them by selling sixty tickets. "Shorty" is myself. Our ball was given on Thursday, April 6, and was the grandest of the season, and also a perfect success. Evans Hall, in which we gave our ball, was for the first time in its existence lighted by electric light, with red, white and blue globes. The stage and the foot-lights were beautifully decorated with ferns and evergreens of all kinds, and the interior of the hall was hung with red, white and blue bunting in all shapes and designs, and last but not least was a monogram of our organization, which was an arm and hand, grasping numerous bolts of lightning, which hung from the ceiling over the stage. This monogram was designed and made by our sick brother, Harry Brown, who is quite a genius.

Among the many that attended our ball, were Mr. C. P. White, Superintendent of the Evansville Gas and Electric Light Company, and Mr. J. Nolan, Superintendent of the People's Electric Light Company. The officers of the evening were: President R. Wright in the box-office, Masston Martin and Sherman Grimm, door-keepers. The entertaining

floor-managers were Al. Grant, Harry Fisher, L. E. Wilke. R. M. Hayes and Wm. H. Ernst.

No. 12 held a special meeting this evening to balance our accounts and receipts of the ball. We found all expenses paid and a snug little sum left to deposit in our treasury.

Wishing the ELECTRICAL WORKER the grandest of success, I am yours,

Fraternally,
Wm. H. ERNST,
Press Sec'y.

P. S.—We should like to hear from Bro. Wm. Marries, who took out a traveling card and left this city on January 24, and has not been heard from since.

LOCAL UNION NO. 13.

CINCINNATI, O., April 14, 1893.

Editor ELECTRICAL WORKER:

Owing to a little difficulty here I have been unable to send in my regular correspondence. The General Electric Company, through their local concern, the Edison Company, have, in their supreme wisdom, decided that experienced men were not necessary and told our boys to walk the plank. They will probably hire some levee roustabouts, but the citizens of Cincinnati will not stand it, and will get their electric power from other sources. All traveling electrical workers should keep clear of this city for the present, and if our neighboring brothers know where any good men are wanted we may be able to supply them with a few, unless the Edison Company see their mistake and rectify it.

K.

LOCAL UNION, NO. 14.

BRIDGEPORT, CONN., April 10, 1893.

Editor ELECTRICAL WORKER:

Having been recently elected Press Secretary, I take great pleasure in penning these few lines to let all our brothers know how No. 14 is getting along.

We started with sixteen charter members, and at the present time have thirty-one. We expect to double in numbers shortly, as the number of men employed in the different manufacturing concerns here are thinking very seriously of joining us.

Owing to the rough weather we have been having lately, a number of brothers have been out of work a great portion of the time, making it very hard for them to keep up their dues. But at the present time, with one or two exceptions, they have secured work.

In the near future we will have a new electric light station here. A number of our most prominent citizens are interested in it, and have applied through the Legislature for a charter. We also are going to have an electric road, which certainly will be 100 per cent better than the horse railroad we now have to endure, as any brother who has seen the service here can testify.

We have in our ranks linemen, inside wiremen, machine men and repairmen. The electric light company is well represented in our local. In fact, we have them all, with two or three exceptions, and expect to get them to join us. The Postal Telegraph Company is also very well represented, every man of them being one of us.

Fraternally,
W. O. KELLOGG,
Press Secretary.

LOCAL UNION NO. 16.

CLEVELAND, O., April 7, 1893.

Editor ELECTRICAL WORKER:

DEAR SIR—Since my last report to the journal business has taken an upward tendency, and, although nothing definite has come from the proposed construction of our street railway, yet in the near future it will be an assured fact, and when the weather gets settled we look for a decided boom. Several of the more important lines of the city have consolidated, and as they are hustling for the coveted franchise, from present indications it seems they will secure it, as they are able to put up as much "boodle" as any of the other lines. They have in contemplation the erection of large shops about

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forty miles south of this city, and as they intend to manufacture and repair all their own apparatus, they will no doubt employ a large number of men, and some of our roving brethren may find this one station where they may stop.

The Brush Electric Company has closed some large contracts, and business is increasing rapidly with them.

The Elliott Company has also secured a large amount of work, and business is very brisk with them, as they are constantly adding new machinery and apparatus, also an extension to their works will soon be necessary.

Some of the incandescent lamp works have been forced to suspend operations on account of the Edison injunction and some are running but very light until a settlement is reached.

All our men are at work, and when spring fairly sets in no doubt we could accommodate a great many more, and would be pleased to meet any of our visiting brethren. Fraternaly yours,

NICHOLAS DUFF,
Press Sec.

LOCAL UNION NO. 17.

Editor ELECTRICAL WORKER:

DETROIT, MICH., April 10, 1893.

Bro. Thomas McGuire succeeds Bro. F. P. Byrne as Treasurer of No. 17, the latter having resigned his office, owing to the press of other business.

No. 17 will celebrate its first anniversary on the 25th inst., by a social party, to be held at the residence of Vice-President King, 636 Hastings street. The programme will consist of speeches by local labor orators, music, dancing and social games, to be followed by refreshments. A music box, donated by Grinnell Bros., will be disposed of on the occasion.

Dame rumor says that one of the valued female clerks in the employ of the Telephone Company will shortly resign her position to enter a life partnership with President Shuart. May their circuit through life be always clear, with no crosses to interfere with their connubial bliss.

Detroit is now vested with power to do its own lighting, the bill authorizing the same having passed the Senate unanimously, and the people voting "yes" by over 12,000 majority. Mayor Pingree has appointed Messrs. Hudson, Butzle, Lathrop, Jackson, Farrand and Newcomb a Board of Electrical Commission, to have charge of the matter, and the Council has confirmed the appointments. Unless the "Trust" makes an enormous drop in prices, it is probable that work will commence at once on the erection of a city plant; \$800,000 is the limit authorized by the bill.

Detroit's Trades Council has rented room 7, Hilsendegen block, for two years, and fitted it up at an expense of about \$300, making it a neat, cosy and comfortable place indeed. Besides holding its regular meetings there, it is proposed to establish a library and reading room, keeping the place open each day and evening for the general public, who will, no doubt, appreciate the council's efforts to improve their mental and moral condition. Already quite a library of public documents are on hand, and it is the intention of the Board of Trustees to procure a number of standard works, as well as the leading periodicals of the day, and such other literature as may be deemed necessary.

REX.

Scheme of Classification.

The electrical workers, who are members of Local Union No. 17, held a meeting yesterday afternoon at 222 Randolph street to consider the feasibility of establishing an apprenticeship system and also to discuss the matter of wages. There was quite a large attendance and much interest was shown in the project of education for linemen and telephone workers, while various views on wages were expressed. In the absence of the Recording Secretary, Wm. Shuart, President of the Union, acted in that capacity, while Mr. King acted as President. There are now over 100 members in the Union. The best linemen at present receive about \$52 per month, and this amount, it is thought, is entirely inadequate in consideration of the kind of work that is demanded. Others receive \$1.50

and \$1.75 per day. It was thought that the apprenticeship system would not only be of service to the members of the Union, but would be of material benefit to the company which employs the men.

The scheme considered was to embody a few rules in the by-laws of the Union relating to the requirements of a first-class man, and if an applicant for membership to the Union did not meet these requirements, then he would have to be classed as an apprentice. On the other hand, if he were fully competent and the standard of the Union in the matter was recognized, he would have no difficulty in getting a good position on recommendation of the organization, as the company would know that the Union would not recommend a man who was not fully competent. At present it is asserted there are many men receiving first-class pay who are not first-class men, and this condition of affairs affects the wages of those who are really capable. With the apprenticeship system in good working order and recognized by the companies, the wages would be better where better wages should be given, and they would be less where the men had not yet fully learned the details of this difficult trade. A lineman has to be first-class or he is of little use, and there are inferior men receiving the same wages paid to a first-class man. The Union will make an effort to see that the line is drawn and incidentally to secure better wages for the best men. The scheme is educational and in keeping with what should be the aspirations of all Unions. A library will be provided for members of the Union, and when a man is elected to the organization he will be given an opportunity to fully qualify himself if he comes under the apprenticeship class.

Tuesday evening, April 25, the first anniversary of Local Union 17 will be observed at 636 Hastings street. The committee of arrangements consists of S. K. King, Wm. Shuart and George Raviler.—*Detroit Free Press.*

LOCAL UNION NO. 18.

KANSAS CITY, April 9, 1893.

Editor Electrical Worker:

No. 18 is booming. We added ten new lights to our circuit in the last two weeks. Five of these are men living in Leavenworth, Kan. Brother F. J. Roth was sent by No. 18 to Leavenworth to initiate them. He reports three others to be added soon from that city.

All of the boys of No. 18 are looking out for union-made goods, as that is our motto—union first, last and all the time—and when they want anything in the boot or shoe line they get them from a union firm in St. Joseph, Mo.

The Missouri and Kansas Telephone Company contemplate doing considerable work this season in the way of rebuilding lines. From all appearances there will be plenty of work for all good linemen in Kansas City this summer.

The West Side Electric Railroad of our neighboring city, Kansas City, Kan., are making extensive preparations to extend their lines and enlarge their plant as soon as possible.

With good wishes for the ELECTRICAL WORKER, fraternaly yours,
W. H. FINCH,
Press Secretary.

LOCAL UNION NO. 19.

PITTSBURG, PA., April 9, 1893.

Editor ELECTRICAL WORKER:

For the first time Local No. 19, of Pittsburg, is making an effort to be in the front rank with the best of the unions, and hereafter Pittsburg will be with them as a thoroughly organized city. Bro. Miller has been with us for some time, and thanks to his efforts and some of our old-timers, we are now in a position to proclaim to the Brotherhood that hereafter Pittsburg will be one of the foremost workers for the Brotherhood. We are now increasing slowly but surely, and hope before long to show the brethren that we are alive.

We have now a committee out to make arrangements for a ball, so as to be in line in social affairs. Will give you more particulars in our next.

Work is plentiful in this part of the country at present, and the outlook for a good season is very flattering.

With best wishes for the National Brotherhood and the ELECTRICAL WORKER, I remain
Fraternaly yours,
W. A. KUNKLE,
Press Sec'y.

LOCAL UNION NO. 20.

NEW HAVEN, CONN., April 6, 1893.

Editor ELECTRICAL WORKER:

DEAR SIR AND BROTHER—We are getting along splendidly in New Haven. We have thirty-six members in good standing. New Haven Union No. 20 meets the first and last Saturday in the month in the Trades Council Hall, 746 Chapel street.

Work is not rushing around New Haven just now. Work is pretty slack with the New Haven Electric Light Company, but may be better after a little time. S. N. E. T. Co. is doing a little, not very much. We intend to have an electric road start pretty soon.

LOCAL NO. 21.

WHEELING, W. VA., April 7, 1893.

Editor ELECTRICAL WORKER:

Regular meeting of Local 21, President Ullery presiding, regular routine of business transacted, after which we had the honor of being addressed by our G. P., Bro. Miller, who entertained us for some time on the progress and benefits of the Union, which was greatly appreciated by all, and hope we may have the worthy brother with us again. Bro. Miller returned to Pittsburgh.

We hold a special meeting to-night for the purpose of establishing an electrical club, which will be known as the Electrical Worker's Club. Will also have a library and reading room for the club's headquarters. Our object is to have a place to spend the evenings and try and get better posted on our work.

Bro. Trimmell surely gave some good advice in his last.

Hoping to hear from all of the Locals, I remain fraternaly,
C. L. ULLERY.

WHEELING, W. VA., March 26, 1893.

To the Officers and Members of N. B. of E. W.:

BRETHREN—I herewith submit for your consideration and action, the following statement. When but a boy I took up my residence with a gentleman by the name of Mr. "John Allen," and after residing with him for some time, by his request assumed his name, fully believing that I would be legally entitled to the same. With that belief I have continued to be known under the name of "John Allen," and under that name did apply and become a member of your honorable body. Therefore, having within the past few weeks received information to the effect that I am not legally entitled to the assumed name of "John Allen," and in consideration of the above facts, I do hereby give notice that I do now assume my birth name and title of Wm. C. Prickett, and would further request that this most honorable body do herewith permit me to have the necessary changes made in and upon the records of the N. B. of E. W., also this statement published in the journal.

Yours fraternaly,
WM. C. PRICKETT.

LOCAL UNION NO. 23.

ST. PAUL, MINN.

Editor ELECTRICAL WORKER:

No. 23 is making good progress. Our circle is enlarged at almost every meeting. The boys had a good time at the dance given by No. 24 of Minneapolis. We expect to give a dance sometime in May. Business is picking up in this city. The St. Paul Street Railway is going to put electric cars on East Seventh street in place of the cable; the St. Paul Harversting Works are putting in an extensive plant, and incandescent lights. The Bohn Manufacturing Company, is putting in a central station on Dayton's Bluff. St. Paul is going to have another telephone company.

The object of the new company is to enter a field not covered by the Northwest Telephone Exchange rather than enter into competition with that concern. Contracts will be made for making connection between the various floors and offices of large business houses, and stringing

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wires from offices to residences in some smaller towns, where telephone conveniences do not now exist.

Mr. Lowry, our street car man, has agreed to build an electric street car line from St. Anthony's Park to Minneapolis via the so-called county road, and Como road in Minneapolis, to connect with the Minneapolis system. They expect to make it a through line from city to city. The Western Union Company is going to put down conduits of its own in St. Paul. The brothers all wish the ELECTRICAL WORKER to become one of the greatest papers of its kind, and a great success.

Fraternally yours,
G. MACKLETT,
Press Sec.

LOCAL UNION NO. 24.

MINNEAPOLIS, MINN., April 6, 1893.

Editor ELECTRICAL WORKER:

DEAR SIR—Local Union No. 24 gave its first annual ball last evening at Mahtowah Hall. The large hall was a theater of merriment, and a number of people outside the Brotherhood were entertained, which filled the floor with dancers, including the brothers from St. Paul, who chartered a car, which was beautifully decorated. Full dress prevailed among the ladies, and the color and gleam of the picture was watched with interest by a number of spectators. Some of the costumes worn were as follows: Mrs. Allen, sea-foam green silk, with corsage and sleeves of myrtle green velvet, and garniture of pale pink satin and pink ribbons; Miss Rosa Kellet, tulle over white silk; Miss Mamie Boyce, pink and black peaude soie; Mrs. Hoy, empire gown of cream silk, brocaded with crimson, crimson velvet sleeves and garniture of twisted cream and crimson velvet ribbons; Mrs. Graves, empire gown of cream bengaline, with garniture of lemon; Miss Maggie Hoy, tulle over cream colored silk, with garniture of lemon ribbons; Mrs. Zarbaugh (St. Paul), black satin, finished with jet; Mrs. E. Christmann, old rose satin, garnished with turquoise brocade; Miss Maggie Kellet, red silk, with sleeves and garniture of red and black ombre silk; Mrs. Lambert, cream brocade; Mrs. Morson, menzel gray crepon.

The eight-hour question was passed by the City Council last evening, and \$1.75 is the pay. Alderman Rand started the fight by a speech in favor of the minority report. "I have been in favor of the adoption of an eight hour resolution ever since I came into the council," he began. "I think the majority of the aldermen are with me, for they recognize that this measure is just to the laboring men employed by the city. The leading cities of the United States have adopted similar resolutions. This sentiment is not confined to the United States, but is the sentiment of the whole world. If you will adopt it you will see that the work will be done as cheaply as it is at present. Instead of overworked laboring men, worn in mind and in body, you will see them happy in their opportunities to develop their minds, with time to beautify their homes, to help their families and become better citizens." Alderman Jennings, the stonemason and Trades-Union advocate, said the eight-hour law was fair, reasonable and right. Eight hours had been adopted by the cities of New York, Chicago, Pittsburg, Duluth, Indianapolis, San Francisco, St. Louis, New Orleans, Louisville, Cincinnati, Baltimore, Denver, Peoria and other cities. Minneapolis was progressive, and should not be behind the others in any measure that tends to the advancement of mankind. The city should not be greedy in its treatment of the laboring men, who earn their bread by hard labor.

Nothing new in the electrical line at present. Companies are expecting to start every week or so.

Fraternally yours,
TIMOTHY DWYER,
Press Sec.

LOCAL UNION NO. 26.

WASHINGTON, D. C., April 10, 1893.

Editor ELECTRICAL WORKER:

Business has begun to start up, likewise the buds on the trees at the National Capital.

The E. M. French Company has put on several extra men lately and still have employment for two or three more good wiremen with cards up to date.

We expect some of the other companies will soon want some extra men, as there soon will be several buildings ready to be wired.

The Government has finished stringing three wires from the proving grounds at Indian Head to the Navy Yard.

One candidate was initiated and three applications were received at our last meeting. Am awaiting developments. Will probably let you know in our next.

Fraternally yours, W. W. GILBERT.

LOCAL UNION NO. 28.

PHILADELPHIA, April 9, 1893.

Editor ELECTRICAL WORKER:

Local union No. 28 had a meeting on April 4, which was not up to the standard, but still lively. I. W. Fitzpatrick occupied the chair for the last time. His resignation was read and accepted, to take effect the 18th inst. He resigns to go on the road for the Postal Telegraph Company, and we all wish that misery and misfortune follow him but never overtake him.

Harry Neill, of the Southern Electric Light Company, sustained severe injuries by falling from a tree. At this writing he is doing well.

"Old Hoss" Denny Daly was precipitated from the top of a 15-foot ladder, and looks as though he had been run through a threshing machine. He bobbed up serenely next morning, which many a younger man would not have done.

A stranger who would have met Brother Wahl toward the latter part of last month, would have thought by his smiling countenance that he had struck a gold mine, but he didn't. It's a girl, and doing well.

There have been fourteen more permits issued for trolley roads in this city, and on one of them they have already started working, day and night.

The output of the Westinghouse Electric Company, of Philadelphia, was for the last fiscal year, \$5,800,000, and net earnings was \$1,650,000.

The Clifton Electric Company, in the suburbs of Philadelphia, is extending its lines, passing through small towns where permission can be had to do so.

The Electric Power Company, of Lesper street, Philadelphia, is a thing of the past, their building having been bought by a West End trust company.

An important ordinance was passed by the Philadelphia Council permitting the new American Standard Telephone Company to construct man-holes and lay and maintain conduits for the telephone system on all principal business streets, said system to be constructed under the supervision of the Department of Public Safety, but said ordinance does not give exclusive rights. The company must supply service free to all main city offices. The Electrical Workers all hope the above goes.

Our last meeting adjourned early. Somebody proposed a song, and Brother McGonigle obliged. Then followed yarns, which everybody enjoyed, and Brother Jack remarked on the quiet:

"That, judging by the flow of wit,
That Shakespeare sometimes here did sit."

I will close, hoping the above will not tire you.

Yours,
N. T. GILBERT, Press. Sec.
Local 28.

LOCAL UNION NO. 30.

TRENTON, N. J., April 2, 1893.

Editor ELECTRICAL WORKER:

As No. 30 has not yet been represented in the columns of the ELECTRICAL WORKER, I write these few lines to let our brothers know that we are still

in it. After a trance of several months' duration, No. 30 suddenly awoke to find itself behind in the race, and has started in with renewed vigor to make up for lost time. We have an able staff of officers, and as our members are all intelligent and working hard to make our union a grand success, we see no reason why Trenton should not have the banner union of New Jersey. Our President, Bro. S. L. Runkle, known through the West as "Sport," is a genial fellow, and is working hard for his union. Our other officers are determined not to be outdone by our President, and on the day of reckoning will come in for their share of the glory.

Business is fair, with good prospects for this summer.

Fraternally yours,
K.

LOCAL UNION NO. 31.

JERSEY CITY, April 2, 1893.

Editor ELECTRICAL WORKER:

The ELECTRICAL WORKER for March has arrived and the boys are well pleased with its appearance.

There has been considerable changes in Jersey City since our last report.

Brothers Healey and Jones have left the telephone company, and have started in the electrical supply business, and Brother Dooley has also left the telephone company to take a position with the Electric Traction Company. There will be plenty of that work here during the coming summer. According to all accounts there will be several roads built and others equipped with electricity as the motive power.

Business is prosperous in Jersey City and we have no brothers idle.

Thus, Healy, who was injured while working for the street railway company, by being struck on the head by the crank attached to the trolley wagon, is still confined in the lunatic asylum at Ward's Island. Being a new member he was not entitled to benefits from the Brotherhood.

Our able Financial Secretary, John Speicher, was a lineman for many years, but who now holds a position as Superintendent of the Fire Alarm, is quite an inventive genius. He has invented and patented several valuable improvements in the fire alarm system. First, an auxiliary or extension fire alarm system, whereby every style of street alarm box can be set in motion from every dwelling or factory by wire with the nearest street alarm box. By pulling the box in factory, the street box is set in motion and the alarm sent out to all engine and truck companies. No false alarm can be sent out by the crossing or breaking of the wire. No battery is required in the building where connected. He has not stated how the system is operated without a local battery.

Let some of the brothers explain how it is accomplished. We know he can do it, as he has a large number in operation in Jersey City.

He has invented an automatic repeater and transmitter whereby a signal can be sent out at three rates of speed.

On the tapers the alarm is received very rapidly, while on the engine-house gongs the alarm is received somewhat slower, but much more rapid than the alarms are received in other cities and towns where his system is not employed. Where tower-bells are used the alarm is received still slower. Owing to the ponderous machinery used to strike the large bells, the alarm must be transmitted slowly to assure a correct alarm. He has one in service in Jersey City which has given perfect satisfaction.

He has still another invention whereby the gongs are struck, the horses loosed, the time given and the alarm recorded. The recording apparatus is so placed that no one can get at it to tamper with it, except those in authority.

Yours fraternally,
F. J. ANDERSON,
71 Sussex Street,
Jersey City.

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JERSEY CITY, March 29, 1893.

J. T. Kelly—Dear Sir and Bro.:

It gives me great pleasure to contribute a few lines to our journal, THE ELECTRICAL WORKER, and I as well as all brothers here wish it a success, and hope that on some future date we may boast of having a journal equal, if not better, than some of our college-bred cotemporaries. Allow me to congratulate you so far on your editorial success. No. 31 is still alive and kicking. We have raised our initiation fee to \$3; have also received our new set of by-laws. I see by our Press Secretary's February report in the journal that I am a terrible kicker. Well yes, I must admit the charge, if kicking for the best welfare of the Brotherhood is terrible, and I am proud of the honor conferred upon me. Bro. Allen is on the right tack; that is what we are organized for—to aid one another, learn one another and bring the trade up to a standard of perfection in all its branches—so that as Bro. Miller, our G. P. said, our card shall be the highest recommendation with our employers. I am glad to hear Paterson No. 32 is doing well. How about Trenton, N. J., No 30? We have not heard of them. We have about seventy members now. The New Jersey Traction Company has started on its Newark and Jersey City branch. It will also run all its lines and some new ones in the city by electricity. Also, the North Hudson Railroad Company will build new trolley lines here and in Hoboken, N. J. I agree with Bros. Dillman of 34 and Ullery of 21, that six months is too short a term for officers in locals, and I think all locals should take a vote on this question, so I must endorse the brothers' suggestion heartily.

We deeply sympathize with Bro. Peter F. Healy, who has lost his little daughter by sickness. Bros. Healy & Jones have gone into business for themselves, and I, as well as the other brothers of 31, wish them a hearty success. By the way, Bro. A. Richmond was elected Recording Secretary and Bro. John F. Barr, Foreman. As Bro. Anderson, our Press Secretary, did not have an article in last month's journal (perhaps not having had the time), I thought I would try and fill the gap for April. Bro. Dooley has gone to work for the New Jersey Traction Company. There is still a great field in New York to get dynamo engineers, trimmers and inspectors into the Brotherhood. They will have a great local over the river if they succeed. But 36 is doing nobly and it will not be long before New York is solid.

Hoping I have not intruded on anybody, I remain the terrible kicker of 31.

A. WICHMANN.

LOCAL UNION No. 32.

PATERSON, N. J., April 6, 1893.

Editor ELECTRICAL WORKER:

DEAR SIR AND BRO.—Local 32 is progressing slowly but surely. At our last meeting, held Monday evening, April 3, we initiated one new member and have propositions in from two others.

Trade has been dull here for two months, there being eight or nine of our linemen living on their bank accounts, but there are prospects of a busy summer. The New York and New Jersey Telephone Company started seven of the boys to-day.

The Paterson and Little Falls Railroad is nearing completion. This road is an extension of the Paterson Central Electric Railroad. The same company is to build a road from here to Hoboken, by way of Passaic and Carlstadt, also about two miles of new road in this city.

There has been a company organized in opposition to the New Jersey Traction Company to construct electric roads, connecting Jersey City, Newark, Paterson, Passaic and the Oranges, with a \$10,000,000 capital. Also another company to build a road along the Pallisades to a point near Nyack, N. Y., and a branch to Hackensack, and still one more company talks of a road from Passaic to Montclair and Orange.

In conclusion, I will refer to Bro. James Rowland, who was killed here August 1, 1892, some

few days after this Union was organized, and we have never been able to get any information as to the whereabouts of any of his relatives. He used to speak of a brother that is in the West. He at one time worked at Rochester, N. Y. I think went from there to St. Louis, and his name is William Rowland, and works at the business. Will Bro. Kelly please look over his book and see if there is such a name on record. If not, will each of the local unions try and ascertain if there is such a person in the locality in which they are situated. If he can be found he will learn of something to his interest by communicating with the Edison Electric Illuminating Company of Paterson, N. J.

Fraternally yours,

E. J. CLANCY,
Press Sec.

LOCAL UNION NO. 34.

BROOKLYN, April 4, 1893.

Editor ELECTRICAL WORKER:

No. 34 is moving along slowly. We have had no phenomenal growth, but have been steadily gaining strength, until after nine months' organization we have a membership of 108. There are still a great number of men here not belonging to the Brotherhood, but we hope in time to have them all.

We meet twice a month, and usually have a good deal of excitement, as there are a number among us who seem to be always open for debate on any subject. Bro. Willis, our champion debater, has a close second in Bro. Simpson, while Bro. Woods seems at a loss what to say until he examines the constitution. There is a good deal of work to be done here this spring, and there seems to be any amount of men to do it.

Trolley roads are being built in almost every car-track in the city. The Citizens' Electric Light Company is building a large addition to its plant and expects soon to start a full force of men on its summer construction.

Yours fraternally,

T. L. WHITE,
Rec. Sec. No. 34.

LOCAL UNION NO. 40.

ST. JOSEPH, MO., April 8, 1893.

No. 40 is still on the circuit and continues to add some very effective lights, among which is Bro. George Peters, who rode the goat to perfection at our last meeting. Bro. Peters hails from Des Moines, Iowa, where there is not yet any local union established. He returns to his respective city with the best wishes of the boys of No. 40, and says that we can bank on him doing all in his power to establish a local union in that town. We feel very proud to locate such important lights and hope that the result will be one more local union added to our grand circuit.

Bro. R. M. Martin of the Peoples' Street Railway Company with a force of six men is stringing some No. 2 trolley wire through the north part of the city on the Union line, preparatory to handling the rush of business to the famous summer resort, Krug Park.

Bro. James Durkin, who recently spent a few days under the supervision of P. W. O'Brien at Leavenworth, has returned to this city and is now with the Peoples' Street Railway Company.

Bro. Gabe Maloy (acting gentleman) has made the fact known that he don't care to go to work until union prices are established in St. Joseph.

Bro. S. M. Kerans has tendered his resignation as Recording Secretary, owing to the fact that his scheme of acting as Chief Electrician at the Crawford Opera House, with a view to working the opera companies, will not permit him to attend meetings. Bro. William Dorsel was elected to fill his place.

The Western Union Telegraph Company has a crew of ten men under the charge of Charles Forefield rebuilding the town of Maryville, Mo.

The Postal Telegraph Company is stringing a copper wire from Des Moines to Rock Island.

Bro. P. W. O'Brien of the Missouri and Kansas Telephone Company of Leavenworth, with a force of fourteen men, has just completed a very creditable piece of work in that city, rebuilding a lead of 45 and 50-foot poles and stringing most all K. K. wire. Some of his force will be retained to rebuild the old Toll line between St. Joseph and Atchison, and then expect to migrate to Oklahoma to make some improvements in the vicinity of Guthrie. H. T. S.

LOCAL UNION NO. 41.

CHICAGO, ILL., April 2, 1893.

Editor ELECTRICAL WORKER:

Business here in our line seems to be at a standstill, although there is lots of work being done. There are rumors of a strike to take place in the near future, but as usual outsiders seem to know more about it than we do. It is true there is an argument going on about a scale of wages, but we do not anticipate any difficulty in regard to its adoption.

The ELECTRICAL WORKER improves with each issue, and we hope that all members, and especially the Press Secretaries, will do all in their power to extend its usefulness. I was pleased to see so many unions represented in the last issue, and hope that they will all be represented in the next. Owing to illness I failed to make connection for the March issue, but will try and have No. 41 represented regularly in the future.

P. L. ROSS,
Press Sec.

LOCAL UNION NO. 42.

UTICA, April 18, 1893.

Editor ELECTRICAL WORKER:

The boys of No. 42 wish to congratulate the editorial staff and the publisher on the very business-like appearance of "our journal." Its new coat put the finishing touch to its already neat external. They join, one and all, in wishing long life and success to it, and to all connected with its production. Well, our ball is now a thing of the past, and we can look back upon that evening with perfect satisfaction for it was an unqualified success. There was only one thing we regretted, and that was the absence of the head office people and their ladies; but when our paper came along (which it did eventually) and we saw from it that their absence was owing solely to our oversight in failing to enclose that few hundred dollars check, our mortification knew no bounds, and we now tender apologies for our stupidity. It must have been a terribly pointed reminder of the power of capital. Believe us, such a slight obstacle shall not despoil our next ball of the presence of our esteemed journalists. We all had a splendid time, which was our chief aim, and our guests were very kind in the compliments they paid us, one and all declaring that they would look forward to our next. We also cleared a neat balance for our sick benefit fund. On Sunday, April 2, there was a lecture to electrical workers, given in the Y. M. C. A. hall, by a Mr. Bond, of Buffalo; some of our local superintendents also addressing a few words to the hardened set of men who formed the electrical part of the audience. Bros. Brigham and Ward took prominent positions in the vocal part of the programme. They are both possessed of rich, manly voices, and never feel as much at home as when singing in a Y. M. C. A. meeting. At our last meeting our financial secretary, Bro. G. P. Owens, tendered his resignation, owing to his duties at the plant, which compel him to spend the greater part of the evening there. His resignation was accepted, and in his place Bro. H. Gordon was elected. If Bro. Gordon fills the place as well as Bro. Owens did, not a soul in 42 will kick. We cannot report anything very great in the way of business, but there are still one or two linemen out of work, and the light wiring is almost at a standstill until the season fetches around some new buildings.

Well, believing I have taken up my share of space, I will say, till next month, I am yours, etc.,
H. GORDON,
Press Sec.

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LOCAL UNION No. 43.

SYRACUSE, N. Y., April 7, 1893.

Editor ELECTRICAL WORKER:

DEAR SIR—Union No. 43 extends to the Brotherhood a greeting:

As this is the first communication, I wish to inform you that the Union held a ball on the 17th of March. It was a success in every way, due to the untiring efforts of President Tyrell and his officers. It was a society affair. The hall was taxed to its utmost and all present enjoyed themselves immensely. Bro. Mark Reardon, with his "dream," led the cake-walk; it would cure one of a headache to see him do his "prettiest." The most pleasing part of the programme was to see the electric light men in the grand march. They have held off since the organization of our Union through an order of the company, which is now canceled, and we have eighteen of their applications for membership to be acted upon at the next meeting, making every man within thirty miles of here a member of our "O, be Joyful Union," which will be good news for Grand President Miller.

Grand Vice-President Healy of Jersey City was here last week on a sad errand, at the burial of his child. He has our sympathy.

The Western Union Telegraph Company has asked permission of the Common Council to put in two miles of a sub-way. There is also a sub-way bill now under debate at the Capitol at Albany to place all wires in the center of the city under ground, if it goes through. It is not looked upon with favor by the tax-payers.

The Consolidated Street Car Company is going to fit up its road with the Thomson-Houston system; it will cover about twenty-five miles.

Bro. "Jack" Tyrell has accepted the position as assistant in the Fire Alarm, in place of Bro. Charles Flood, resigned, who has gone to Phelps for the Long Distance.

Yours fraternally,
W. F. MCCARTHY,
Press Sec.

LOCAL UNION No. 45.

BUFFALO, March 28, 1893.

Mr. Editor:

DEAR SIR—Local Union No. 45 congratulates you on presenting such a fine monthly before the brotherhood, and it is appreciated by all. Buffalo L. U. has now thirty members, and is steadily increasing, it being only organized last fall. We hold our meetings every Monday night. Our President, Bro. Ed. Calvin, is a "hustler;" he is just the man for the place, and him we hold in a measure responsible for the success of the Union.

We had a ball on the 17th of March; every one had a good time, and it was also a success financially.

There will be plenty of work in Buffalo this spring; the Niagara Falls Power Company expect to start their lines. The Bell Company and the Western Union has plenty of work; the Electric Light Company has a larger gang now than ever. Since the amalgamation they seem to be in hard luck. Two fires within two months, and they were the largest stations. They have entirely new dynamos now, as the others were all destroyed. They have a 5000 light alternating running, as well as eight alternating dynamos of various capacity. All the wires are going to be placed underground as soon as possible.

The street railways will also be busy this spring; they will extend their lines as soon as the frost is out of the ground. They have twelve Edison generators of 200 K. W., and are putting in some General Electric multipolar generators.

We all congratulate Local Unions Nos. 9 and 41 on their success in Chicago.

Yours truly,
EDW. MEYER.

DIRECTORY OF LOCAL UNIONS.



(Secretaries will please furnish the necessary information to make this directory complete. Note that the time and place of meeting, the name of the President, the names and address of the Recording and Financial Secretary are required.)

No. 1, St. Louis, Mo.—Meets every Tuesday evening at 305½ Olive st. D. Lafferty, President; M. L. Purkey, Recording Secretary, 207½ N. Twelfth st.; John Hisserick, Financial Secretary, 315 Chestnut st.

No. 2, Milwaukee, Wis.—Meets 1st and 3d Wednesday at 526 Chestnut st. W. Denning, President; F. W. Smith, Recording Secretary, 377 Fifth st.; E. Talbott, Financial Secretary, 315 Jackson street.

No. 3, New York, N. Y.—Meets every Thursday evening at Clarendon Hall, 114 E. Thirteenth st. Second and fourth Thursdays are devoted to lectures and instructions on practical electrical subjects. John P. McMahon, Pres.; Lester C. Hamlin, R. S., 542 East 17th st.; E. D. Leaycraft, F. S., 283 Flatbush ave., Brooklyn.

No. 4, New Orleans, La.—Meets 1st and 3d Wednesday at Odd Fellows' Hall. Wm. Moake, President; J. C. Bradley, Recording Secretary, Napoleon and Custom House sts.; J. J. Vives, Fin. Sec., 173 S. Basin st.

No. 5, Nashville, Tenn.—A. H. Praugue, President; J. C. Bender, Recording Secretary, 817 N. Market st.; E. W. Morrison, Financial Secretary, 308 N. Summer st.

No. 6, Memphis, Tenn.—E. J. Gray, Secretary, 20 Goslee st.

No. 7, Springfield, Mass.—John Hoyt, President, F. Wyatt, Recording Secretary, Hotel Glenham; S. F. Cameron, Financial Secretary, 267 Main st.

No. 8, Toledo, O.—Meets every Thursday at 223 Summit st. James Carney, President; Michael Connors, Recording Secretary, 213 Everett st.; T. H. Nevitt, Financial Secretary, 1007 Bartlett st.

No. 9, Chicago, Ill.—Meets every Saturday at Plasterers' Hall, 192 E. Washington st. G. W. Edison, President; Gus Sauers, Recording Secretary, 156 E. Twenty-Second st.; J. H. Capps, Financial Secretary, room 35, 166 E. Washington st.

No. 10, Indianapolis, Ind.—Meets every other Monday at 33½ S. Illinois st. Sam'l B. French, President; L. E. Jones, Recording Secretary, 95 N. Meridian st.; C. W. Neal, Financial Secretary, 199 W. Maryland st.

No. 11, Terre Haute, Ind.—Meets every 2nd and 4th Tuesday at Washington Hall, cor. Eighth and Main sts. John Davis, President; Harry Bledsoe, Recording Secretary; Wm. C. Bledsoe, Financial Secretary, 424 S. Thirteenth st.

No. 12, Evansville, Ind.—Meets every Tuesday at Tenney Hall, Main st. R. Wright, President; Harry Fisher, Recording Secretary, 202 Clark st.; L. E. Wilke, Financial Secretary, box 266.

No. 13, Cincinnati, O.—Meets every Monday at Germania Hall, Vine st. J. C. Williams, President; J. B. Walker, Recording Secretary, 131 W. Ninth st.; H. D. W. Glenn, Financial Secretary, 27 Elizabeth st.

No. 14, Bridgeport, Conn.—C. F. Callahan, President, 173 Fairfield ave.; Ed Fagan, Jr., Recording Secretary, 78 Gregory st.; W. O. Kellogg, Financial Secretary, 160 Cannon ave.

No. 15, Worcester, Mass.—Chas. Cumming, Recording Secretary, 393 Main st.

No. 16, Cleveland, O.—Meets every Monday at 94 Superior st. J. J. Jennings, President; N. Duff, Recording Secretary, 44 Wilson place; J. J. Carr, Financial Secretary, 159½ Root st.

No. 17, Detroit, Mich.—Meets 1st and 3d Thursday at Trades' Council Hall, 224 Randolph

st. W. C. Shuart, President; I. B. Miller, Recording Secretary, 71 Henry st.; E. J. Lane, Financial Secretary, 705 15th st.

No. 18, Kansas City, Mo.—Meets every Friday evening at Industrial Hall, cor. Eleventh and Main sts. J. J. Jones, President; C. H. Adams, Recording Secretary, 215 W. Fourteenth st.; J. C. Tanpert, Financial Secretary, M. & K. Tele. Co., Sixth and Delaware sts.

No. 19, Pittsburg, Pa.—H. Hart, President; W. J. Condon, 4 Mansion st.

No. 20, New Haven, Conn.—S. R. Morrison, President; D. C. Wilson, 157 St. John st. Recording Secretary; J. Carter, Financial Secretary, 270 Hamilton st.

No. 21, Wheeling, W. Va.—C. L. Ullery, President, J. F. Bonnett, Recording Secretary, 2623 Jacob st. Wm. C. Prickett, Financial Secretary, box 111.

No. 22, Omaha, Neb.—Meets at Arcanum, Hall, 1314 Douglas st. J. J. Dooley, President, 1405 Jackson st.

No. 23, St. Paul, Minn.—Joe Macauley, President; Thos. Carey, Recording Secretary, 311 E. Thirteenth st. F. A. Zimmerman, 66 Douglass st., Financial Secretary.

No. 24, Minneapolis, Minn.—P. J. Fleming, President; W. Allen, 822 Eighth ave., S., Recording Secretary; Geo. Hulig, Financial Secretary, 25 Seventh st., south.

No. 25, Duluth, Minn.—S. J. Kennedy, President; Phil. Bellivere, Recording Secretary, Wieland Blk.; C. C. Miles, 28 Seventh ave., west., Financial Secretary.

No. 26, Washington, D. C.—Meets every Friday evening at K. of P. Hall, 425 Twelfth st., Nw.; R. F. Metzler, President; W. W. Gilbert, Recording Secretary, 941 Maryland ave. Sw.; P. A. Deffer, Financial Secretary, 941 Maryland ave. Sw.

No. 27, Baltimore, Md.—Meets ———. Fred Russell, President, 1408 Asquith st.; Wm. Manning, Recording Secretary, 1026 N. Front st.; J. W. Ebaugh, Financial Secretary, 107 N. Gay st.

No. 28, Philadelphia, Pa.—Meets ———. J. W. Fitzpatrick, President; H. B. Frazer, Recording Secretary, 1425 Vine st.; Thos. Flynn, Financial Secretary, 1116 Jackson st.

No. 29, Atlanta, Ga.—H. C. Bullis, President; J. R. Wellbern, Recording Secretary, 67 Butler st.

No. 30, Trenton, N. J.—S. L. Runkle, President, Trenton Electric Light and Power Co.; Ed. Anderson, Recording Secretary, Trenton Electric Light and Power Co.; Joe Harris, Financial Secretary, Trenton Electric Light and Power Co.

No. 31, Jersey City, N. J.—Thos. Watson, President; A. Richmond, Recording Secretary, 212 Wayne st.; John Speicher, Financial Secretary, 105 Newark ave.

No. 32, Paterson, N. J.—John Kane, President; Frank Areson, Recording Secretary, 214 Godwin st.; J. W. Estler, Financial Secretary, 118 E. Thirty-Third st.

No. 33, Newark, N. J.—Meets every Monday evening at No. 58 Williams st.; Thos. Leahey, President; J. S. Stiff, Financial Secretary, 38 Elm st.; W. Whitehouse, Recording Secretary, 117 Quitman st.

No. 34, Brooklyn, N. Y.—T. J. Holihan, President; T. L. White, Recording Secretary, 363 Cumberland st.; P. J. Dnuu, Financial Secretary, 219 Adams st.

No. 35, Boston, Mass.—Meets 1st, 2d and 3d Wednesday and last Sunday, p. m., of each month. Ira M. Mosher, President; John H. Mahoney, Recording Secretary, No. 69 Essex st.; P. H. Dacey, Financial Secretary, 17 Hanson st.

No. 36, New York, N. Y.—Meets weekly at Ledwith Hall, Forty-fifth st. and Third av.; J. E. McGinty, President; L. L. Hall, Recording Secretary, 117 Leonard st.; John J. McDounell, Financial Secretary, 1632 Madison ave.

No. 37, Hartford, Conn.—Meets 1st and last Friday of each month at Central Union Labor Hall, 11 Central Row. Morris Cavanagh, President; J. T. Neville, 289 Allyn st., Recording Secretary; Geo. Dugan, Financial Secretary, 27 Affleck st.

No. 38, Albany, N. Y.—Meets the 1st and 3rd Thursday of each month. M. J. Cellery, President; John M. Wiltse, Recording Secretary, 22 Third st. E. Albany; Owen Dooney, Financial Secretary, 4 Rensselaer st., Troy.

No. 39, Grand Rapids, Mich.—J. R. Watson, President; L. L. Henry, Recording Secretary, 97 Ottawa st.; Geo. Dierdorf, Financial Secretary, 723 Fifth ave.

No. 40, St. Joseph, Mo.—Meets every Saturday at Weidmeier & Wildburger's Hall, 623 Messanie st.; M. L. Durkin, President; M. S. Kerans, Recording Secretary, St. Joseph Electric Supply Co.; R. W. Stockwell, Financial Secretary, M. & K. Tel. Co.

No. 41, Chicago, Ill.—Meets every Wednesday at 116 Fifth ave. C. J. Edstrands, President; Chas. Osberg, Recording Secretary, 234 Townsend st.; Wm. Meacham, Financial Secretary, Crawford, Cook Co.

No. 42, Utica, N. Y.—Meets 2d and 4th Thursday at Trades' Assembly Hall, Bleeker st. W. B. McCoy, President; E. F. Allen, Recording Secretary, Columbia and Camelia st.; Harry Gordon, Financial Secretary, 512 Whiteboro st.

No. 43, Syracuse, N. Y.—Jas. Tyrell, President; A. D. Donovan, Recording Secretary, 305 Temple st.; Chas. Beattie, Financial Secretary, 217 N. Crouse ave.

No. 44, Rochester, N. Y.—W. Carroll, President; H. W. Sherman, Ninth and Rowe, Recording Secretary, J. Desmond, Western and North ave., Financial Secretary.

No. 45, Buffalo, N. Y.—E. Calvin, President; F. Hopkins, Recording Secretary, 77 Swan st.; H. L. Mack, Financial Secretary, 14 Mason st.

TAKE NOTICE

Officers of Local Unions should carefully read the following rules before writing for information:

1. Give notice at once when a change occurs in Secretary's address, or when a vacancy has been filled by the election of a new officer.
2. Consult the financial report in the WORKER every month, and if incorrect, report at once.
3. Arrange to receive any mail that may be en route to old addresses of officers, when change occurs.
4. In reporting the election of new officers, use the regular blank furnished for that purpose, and write plainly the name and address of each officer.
5. The monthly report of the financial secretary must accompany the dues sent.
6. Never fill out a report of any kind until first making it out on waste paper, then copy it on the regular report blank. This obviates alterations and scratching.
7. Always put name and address on reports and letters.
8. Send in name, number of card, age, and date of admission of each new member, as he will not be entitled to benefits until his name is enrolled on the books at the general office.
9. Report promptly the suspension or expulsion of members; also traveling cards taken out.
10. When sending money always state what the amount is for; do not leave it for the G. S.-T. to guess at.
11. All orders for supplies should be accompanied with the requisite amount of money.
12. Never send money in a letter. All remittances should be forwarded by post office money order, express money order or bank draft.
13. Unions indebted for over two months' dues are non-beneficial (see Art. XV. Sec. 5). All members are interested in this matter and should look after it closely.
14. On the expiration of a traveling card the member holding said card should pay one month's dues and receive a due card and be enrolled as a member of the Union, the same as a new member.
15. All Local Treasurers should be under bond and the same filed with the G. S.-T.
16. All receipts and correspondence from the general office should be read at the meetings.
17. Read the constitution carefully and consult it on all matters that arise for consideration.
18. Make out all reports with ink and use the regular report blanks and letter paper furnished for that purpose.
19. When admitting or reinstating members the strictest inquiry as to health must be observed. If the member is married the wife's health must also be noted.
20. Claims for benefit must be filled out in every particular, and the law in regard to their presentation rigidly complied with.
21. No claims will be allowed unless the member is square on the books. Our beneficial system would cease to be an incentive for prompt payment of dues were this law not enforced.
22. Remittance of dues is not allowed under our Constitution. The amount of the dues must be deducted from the sick benefit paid by the Local. A member entitled to benefits can not

get in arrears while receiving benefits. Members, by contribution, can keep the dues of a sick or unfortunate brother, not entitled to benefits, paid up.

23. Salaried officers must pay their dues and carry due cards. When salaries are due they must present their bill, and its payment passed on the same as any other bill presented to the Union.
24. Newly-elected officers must procure all blanks, documents, etc., from their predecessors.
25. Parties shall never assume to pay the funeral expenses of deceased members until first assured that the claim is allowable.
26. Preserve old due cards. They may be useful for reference in case of dispute over dues, etc.
27. Members should always when attending meetings of the Union have with them their Constitution and By-Laws; also their due cards.
28. Parties making statements in reference to recreant members will be held responsible for statements sent in for publication.
29. Matter for the ELECTRICAL WORKER must reach the general office by the 10th of each month.

As we are about to open a new roll book we request all Secretaries to furnish us soon as possible a complete roll of their members since their Union was organized. Some of the Unions with a membership of 100 to 200, according to the Financial Secretary's report, have less than twenty entered on the books at the general office, and none outside of those twenty would be entitled to death benefits.

Send in the name of every member initiated since the Union was organized, even though long since suspended or expelled. This is necessary, as we must have a correct record of every member who ever belonged to the Brotherhood.

GENERAL NEWS.

Where Electrical Workers May Look for Work.

COLUMBUS, IND.—The electric roads in this city are about finished, and will be put in operation in a few days.

CHICAGO, ILL.—During the exhibition season seven miles of the lake front will be lighted by means of electric buoys. This is to be a feature of the World's Fair, and will form part of the Government exhibit.

OMAHA, NEB.—It is proposed to establish large tanneries in South Omaha. The great packing firms of Omaha are backing the enterprise, and electricity in this, as in other branches of industry, will play an interesting part. The Groter method of electric tanning, which is extensively used in Belgium and France, will be employed.

DAYTON, O.—The Dayton Street Railway Company will build twenty miles of electric road this season.

BUTTE, MONT.—A company has been organized, utilizing the water power at the Big Verti river thirty miles distant, for the purpose of generating electricity to light the city.

BUCHANAN, MICH.—The Buchanan Power and Electric Light Company has been incorporated with a capital of \$100,000.

WINCHESTER, KY.—This city asks for bids for an electric light plant. F. P. Pendleton, Mayor.

PARKERSBURG, W. VA.—The Parkersburg Gas and Electric Company will erect a new plant.

BOONE, IND.—The Boone Electric Railway and Light Company will issue \$45,000 first mortgage six per cent bonds to build and equip an electric light and power plant.

HICKORY, N. C.—N. E. Thornton is in the market for an electric power plant.

COVINGTON, KY.—The New Home Telephone Company has been incorporated, with a capital stock of \$500,000. Work will commence immediately.

NOTRE DAME, IND.—St. Mary's Academy will put in an electric plant during the coming summer.

LOS ANGELES, CAL. The Consumers Electric and Gas Company will put in a \$1,000,000 plant.

CLYDE, O.—Sealed proposals will be received until May 9 for a complete electric plant, including engines and boilers.

OAKLAND, CAL.—This city contemplates building and establishing an electric plant.

AURORA, ILL.—An electric road will be built between this city and Batavia, a distance of seven miles.

BIRMINGHAM, ALA.—The General Electric Company of Boston which has obtained control of the Consolidated Electric Light Company, has

closed a deal whereby they will erect a large electric plant in this city.

NEW HAVEN, CONN.—The State Street Horse Railway Company has decided to change to an electric system. Work will commence at once.

MILWAUKEE, WIS.—Bayley & Sons will put in a twenty-five light arc plant in their new factory on Greenbush street.

DAYTON, O.—The Dayton Electric Light Company and the General Electric Company of New York have consolidated. The Dayton parties retain control of the stock, which amounts to \$20,000.

McKEESPORT, PA.—The McKeesport electric light plant has been destroyed by fire. Loss, \$75,000.

CHICAGO, ILL.—The Miller Incandescent Signal Company has been incorporated with a capital stock of \$250,000.

NORTHEAST, MD., wants an electric light plant.

BERKLEY, W. VA.—Bids are asked for an electric light plant by the Berkley Spring Water Works and Improvement Company.

COLLEGE STATION, TEX.—The Agricultural College located here will put in an electric light plant this summer.

ATLANTA, GA.—Franchises have been granted to the Sithia Springs Railway Company to construct ten miles of electric road. Contracts will soon be let. Thomas Camp, President.

CINCINNATI, O.—It is proposed to build an electric road around the outskirts of the city. According to plans, the road will be about twenty miles in length, starting at Sedamsville and winding up at Walnut Hills, where it will connect with the cable road.

JASPER, IND.—The town board has decided to put in an electric plant.

CANON CITY, COLO.—The Canon City Electric and Power Company is preparing to double its plant.

CHICAGO, ILL.—The plan is revived to furnish an elevated entrance to the business district of Chicago for the Elevated Electric Line.

PATERSON, N. J.—The Speer Electric Transit Company has been incorporated with a capital of \$100,000 to build an elevated electric road.

WHEELING, W. VA.—The new McLure Home will put in a five hundred light electric plant. Address, W. F. Seymore, Wheeling, W. Va.

GLENDINE, MONT.—An electric light plant will be put in the coming season.

GENEVA, N. Y.—The Geneva and Waterloo Railway Company has been incorporated with a capital stock of \$250,000, and will build an electric road seven miles long between these points.

WATERLOO, IND.—This town will put in an electric plant this season.

WINDSOR, CONN.—The George Barber saw-mill property has been purchased by Judge Hayden and he will use it for an electric plant.

BROOKLYN, N. Y.—The Atlantic Avenue Railway Company will extend the trolley system over all its lines.

HILLSDALE, MICH.—The city has voted to own its own electric light plant.

NEWARK, N. J.—The car-house and plant of the Newark and Orange Electric Railroad Company has been destroyed by fire. Loss, \$150,000.

TOLEDO, O.—J. K. Follotson's electric road, known as the Put-in-Bay and Southern, is to be extended to Lakeside. Work will commence at once.

INDIANAPOLIS, MD.—Bids will soon be called for to light the jail and court house with incandescent electric lights.

PORT HURON, MICH.—A company has been organized to build an electric road to Marine City, a distance of twenty miles. It will probably be extended to Mount Clemens and Detroit.

WYANDOTTE, MICH.—After much litigation the Municipal Electric Lighting Plant was started on the 10th. The city had been paying \$90 per year for arc lamps, but expects to furnish its own lights at \$50 per lamp.

MT. VERNON, ILL.—The Mt. Vernon Electric Light and Power Company has reorganized, and will construct a \$20,000 plant, with the General Electric Company as one-third stockholders, T. W. Evans and A. C. Tanner of this city taking the other two-thirds.

CEDAR RAPIDS, IA., asks for bids to light the streets with arc lights.

BALTIMORE, MD.—A company with a capital stock of \$1,000,000 has been formed to build an electric road from here to Washington. The road will be thirty-eight miles long, and work will commence at once. Brown & Son, the Baltimore bankers, are interested.

APR 1893 P.A.3

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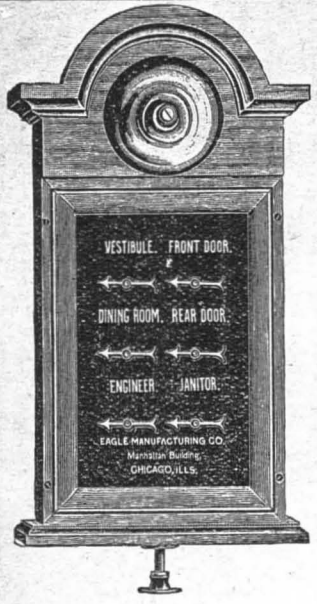
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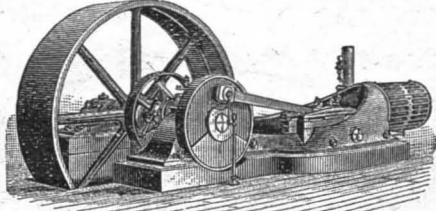
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