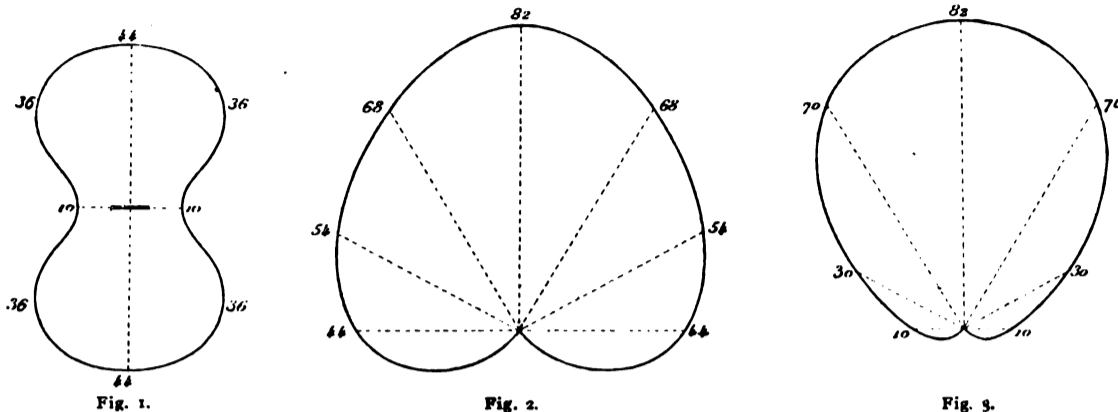


Luminosity and Efficiency of the Nernst Lamp.

An anonymous correspondent of l'Industrie Electrique of Paris has sent that journal an interesting account of the action of the new Nernst incandescent lamp. The tests were made on a lamp marked 220 volts and 80 watts, the voltage during the test being varied between the limits of 180 and 220 volts. The lamp was mounted on an Edison base and enclosed in a globe of clear glass. The accompanying diagrams, Figs. 1, 2 and 3, represent the luminous

white-painted support over which the lamp is mounted forms a reflector, and that the bulb itself constitutes a sort of parabolic reflector of which the filament occupies practically the focus. In the horizontal direction the great variations in the brilliancy are perhaps due to the refractions in the irregularities of the glass, but are rather to be attributed to the shadows cast by the automatic igniter.

Commenting on these tests, Mr. E. Hospitalier, the editor of l'Industrie Electrique, says: "If these figures of our correspondent are exact—and it is probable that they are practical—they easily explain



LUMINOSITY AND EFFICIENCY OF THE NERNST LAMP.

intensities of the lamp measured in different positions. Fig. 1 gives the luminous horizontal intensity on a level with the filament, Fig. 2 the vertical intensity in a plane perpendicular to the axis of the filament and passing through its center, while Fig. 3 shows the vertical intensity in the plane of the filament. The lamp was placed vertically, with the socket beneath. In the following table are given the results obtained with an expenditure of 90 watts:

	Luminous Intensity in Candlepower.	
	Maximum.	Mean.
In the horizontal plane of the filament.....	44	50 (?)
In the vertical plane perpendicular to the filament.....	82	37
In the vertical plane of the filament.....	82	25
Mean spherical luminous intensity.....	30 candlepower.	

The curves of Fig. 4, which are made from the data obtained in the tests while varying the voltage, show the rapid variations which all the elements entering into the operation of the lamp undergo as the voltage is raised. The tests showed that a diminution of five per cent. in the voltage produced

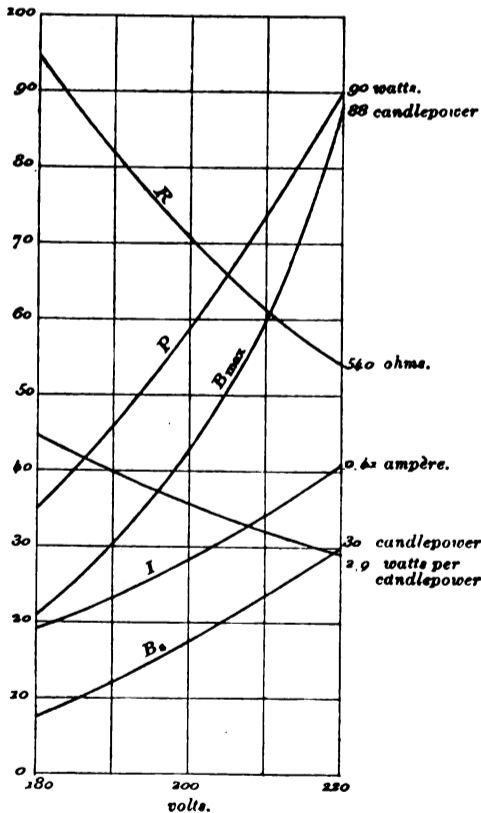


FIG. 4. LUMINOSITY AND EFFICIENCY OF THE NERNST LAMP.

a variation of 25 per cent. in the luminous intensity. The expenditure of about one watt per candlepower for the maximum luminous intensity was raised to 2.9 watts per candlepower for the mean spherical luminous intensity. Below 180 volts the light dies away very quickly. Referring to the diagram, the abscissæ represent the volts, (I) the current in amperes, (P) the power in watts, (R) the resistance in ohms, (Bmax) the maximum luminous intensity in the axial direction of the lamp in candlepower, and (Bs) the mean spherical luminous intensity in candlepower. The curve not marked indicates the specific consumption of power in watts per candlepower.

In all that concerns the brightness and quality of the light the new Nernst lamp is said to give complete satisfaction. The correspondent attributed the exaggeration of the luminous intensity in the direction of the axis of the lamp to the fact that the

hesitation, extremely creditable, moreover, of the promoters of the Nernst lamp to put it on the market. The promoters do not doubt that the Nernst lamp is bound to be one of the electric lights of the future, but the results which we have published make it evident that the lamp does not, so far, promise the industrial progress which has been achieved by the carbon incandescent lamps, if we take into account the complications introduced by the automatic igniter and the lack of stability of the elements entering into the operation."

Standardizing Street-railway Equipment.

The committee on standardizing of street-railway equipment appointed at the recent meeting of the executive committee of the American Street Railway association has begun active work with a view of presenting a comprehensive report on the subject at the annual meeting of the association in October next. T. E. Crossman has been appointed secretary to the committee, and he, in conjunction with the members of the committee, will visit some of the leading manufacturers of street-railway equipment to ascertain their views on the subject of standards.

The members of the committee are John R. Graham, Lynn and Boston Railroad company, Boston; N. H. Heft, Meriden Electric Railroad company, Meriden, Conn.; Willard J. Hield, Twin City Rapid Transit company, Minneapolis; Conway F. Holmes, Metropolitan Street Railway company, Kansas City; Frank G. Jones, Memphis Street Railway company, Memphis. The committeemen request that all who are interested in the subject will correspond with the secretary of the committee, whose address is 1829 Park Row building, New York, prior to May 20th, at which time a meeting of the committee will be held in Buffalo.

Electric Lighting at Nome, Alaska.

Nome, Alaska, has had electric lighting for some time. A recently erected plant is owned by the Alaska Commercial company, and is used for lighting the store, warehouses and dwellings of the company. When the Anvil Masonic Club gave its annual ball at the Standard Theater last winter Captain Carlson, general manager of the company at Nome, donated the power and material for the electrical decorations of the theater, among which the Masonic emblems were very conspicuous.

A large city-lighting plant is to be built this spring at Nome. H. H. Knox and others are promoting the plans. The entire plant is to be equipped by the North West Fixture company of Seattle, Wash., of which L. S. Kasson is president.

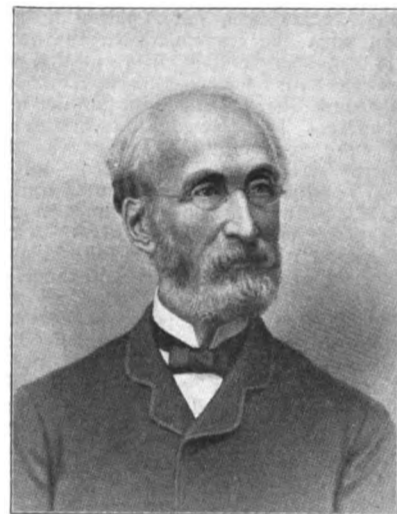
National Electric Light Association.

Announcement is made by C. O. Baker, Jr., master of transportation for the National Electric Light association, that the Trunk Line association, the New England Passenger association and the Canadian lines have granted a rate of a fare and a third on the certificate plan from all points in their territories to Niagara Falls and return for delegates and friends attending the twenty-fourth convention of the National association to be held on May 21st, 22d and 23d. The time limit of these tickets—three days before and three days after the meeting, not including Sundays—will enable members who desire to do so to attend the dedicatory ceremonies of the Pan-American Exposition at Buffalo, which will take place on Monday, May 20th.

OBITUARY.

James D. Reid.

James Douglas Reid, the "Grand Old Man" of the telegraph, died at his home in New York on Sunday, April 28th. He had been ill for many weeks. Mr. Reid was born in Edinburgh, Scotland, March 22, 1819, and in 1834 came to America, locating in Toronto, Canada. In 1837 he went to Rochester, N. Y., and entered the employment of Henry O'Reilly. In 1845, when Mr. O'Reilly completed his contract with the Morse patentees for the construction of western telegraph lines, he selected Mr. Reid as his first assistant. In August, 1845, Mr. Reid took charge of the initial telegraph line between Lancaster and Harrisburg, Pa. He soon afterward became acquainted with Samuel F. B. Morse. A strong mutual attachment followed, which led to Mr. Reid's appointment as superintendent of the Magnetic Telegraph company, extending from New York to Washington. In addition, he was made superintendent of the Atlantic and Ohio Telegraph company, under which name the first line from Philadelphia to Pittsburg was operated. The latter company was so successful from the start and paid such good dividends that Mr. Reid was appointed successively superintendent of the Lake Erie, Pittsburg and Louisville, the Ohio and Mississippi, and finally of the telegraph lines to New Orleans, and all known and for some time working together as the "National Lines." As far as data can be found, it seems conclusive that Mr. Reid was



JAMES D. REID.

the first duly appointed telegraph superintendent in either America or Europe.

In 1856 Mr. Reid was appointed superintendent of the New York, Albany and Buffalo Telegraph company, which, soon after, through negotiations of Mr. Reid, became a part of the Western Union telegraph system. In 1865 the United States Telegraph company was organized, with William Orton as president and James D. Reid as secretary, but only to be absorbed a year or two later by the Western Union Telegraph company, into whose service Mr. Reid again entered, and, at Mr. Orton's request, became editor of the Journal of the Telegraph. One of the first uses he made of his new position was to organize the Telegraphers' Mutual Benefit association—now a prosperous life-insurance association—for the benefit of telegraphers. Mr. Reid was the first president of this association.

It was in 1877 that Mr. Reid published his first edition of "The Telegraph in America," and the second edition made its appearance 10 years later. This book is a very complete history of the telegraph from its birth, and deals with the subject very thoroughly. On October 16, 1889, through the influence of Andrew Carnegie, who served under him for some time as a messenger boy, Mr. Reid was appointed, by President Harrison, consul at Dunfermline, Scotland, which office he retained until 1897. Mr. Reid had for years been a prominent figure at conventions and other places where persons interested in telegraphy have congregated. The statue of Professor Morse in Central Park, New York, was erected by the telegraph fraternity through the efforts of Mr. Reid. To quote the language of a well-known writer on telegraphic subjects: "Mr. Reid was the most beloved member of the telegraphic profession; his gentle and kind attributes endeared him to all, and as the 'Grand Old Man' of the telegraph his name will ever be associated with the telegraph itself."

Tragic Death of I. H. Farnham.

Mr. I. H. Farnham, chief electrician of the New England Telephone and Telegraph company, was

shot and instantly killed at Portland, Me., on April 24th, by George H. Brainerd, a foreman in the employment of the same company.

Extensive alterations are being made in the company's exchange at Portland, and Brainerd, with a crew of electricians, had been employed there for some weeks. Mr. Farnham had come from Boston to inspect the work, and Brainerd accompanied him during the inspection of the exchange. Just before two o'clock, Brainerd, without warning, and so far as can be ascertained, without any provocation whatever, drew a revolver and shot Mr. Farnham in the forehead, killing him instantly. Before



I. H. FARNHAM.

Brainerd was overpowered he had wounded three fellow-workmen, two of them fatally. No reason can be assigned for Brainerd's action, for he has been on the best of terms with all the employes of the company. He is a very nervous man and he evidently collapsed under the strain of his work. He had been employed by the New England company for 10 years and was 45 years old and married.

Isaiah Henry Farnham was one of the best-known men in New England electrical circles. He was born in Woolwich, Me., in 1853, and early in life showed a decided bent toward electricity, and especially toward experimental work. His first position in an electrical capacity was as a telegraph operator at Boothbay Harbor, Maine. He was made local manager of the Western Union Telegraph company at Portland in 1879, and in 1885 he became the electrical engineer of the New England Telephone and Telegraph company, with headquarters at Boston. He was one of the first electricians in the country to suggest the possible trouble to underground metallic structures, resultant from the grounded return of electric-railway systems.

Mr. Farnham had patented 20 or more electrical inventions. Among the first and most important of these was the device known as the "wax-ball protector," which is designed to afford protection to electrical apparatus. Mr. Farnham frequently appeared as expert in cases where professional knowledge was required, and he had been a participant in most of the old telephone conventions. He was a member of the American Institute of Electrical Engineers. His home was at Wellesley, Mass., where he lived with his wife and five children.

The loss of Mr. Farnham will be deeply felt by the officers of the New England company and by many other telephone and telegraph men.

Under date of April 26th the Boston correspondent of the Western Electrician writes: "George H. Brainerd was arraigned in the Portland (Maine) Municipal Court to-day, charged with the murder of Isaiah H. Farnham. His attorney entered a plea of not guilty, and waived examination. Brainerd was held for the grand jury without bail. He did not say a word in the courtroom and showed no trace of excitement. He will be taken to the Augusta Insane Asylum for an examination as to his sanity. Dr. Thayer of Portland examined him and declared that he was insane."

The New York Assembly has reported favorably the bill incorporating the Lower River Power and Water Supply company of Niagara Falls, N. Y., with a capital of \$5,000,000, amended so as to confine its operations to Niagara County. This, it is said, will not prevent it selling power to transportation companies in that county for transmission to all the cities of the state. The incorporators are: Commodore P. Veeder, Tunis G. Bergen, William Williams, Charles E. Hotchkiss and De Witt Van D. Reiley of New York, and Patrick F. King, George W. Knox and James S. Simmons of Niagara Falls, N. Y. The company is to take its water out of the Niagara River below the Falls.

Electric Wiring in the Hawaiian Islands.

By R. G. MAYSE.

On returning to America from the Philippine Islands and the Far East, I stopped over at Honolulu, and was surprised to observe the advancement which had been made in the telephone, telegraph and Signal Corps lines in the islands. I was here about two years or more ago and noted at the time that there was an abundance of opportunity for improvements in the conveying of messages from point to point in the islands. These possibilities have been recognized by the electricians and Signal Service men, and the result is that there are fairly good means in vogue for the transmitting of dispatches from one place to another.

I observed that many native electricians had been trained to handle the lines and instruments, and it may be interesting to readers to note some of the methods employed. I show in Fig. 1 a little sketch of the manner which is employed for twin wiring a joint. The tubes are armored and trunnioned. Caps (A), (A) are used and adjusted, as shown, while the line of wiring is at the level (B). Porcelain or metallic disks (C) are used for protecting purposes. However, I saw some of these unions broken at the joints, as at (D). In Fig. 2 is the way the native linemen put wires through partitions and woodwork, using tubing with protecting sleeve (F), the meeting section being at (E). I observed that some of the tube-wire carriers were broken, as at

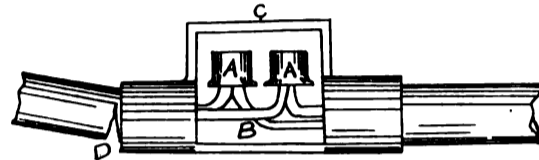


Fig 1

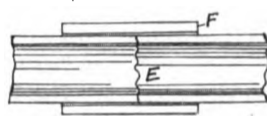


Fig 2

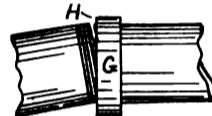


Fig 3

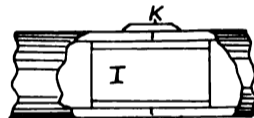


Fig 4

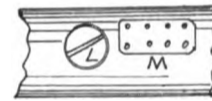


Fig 5

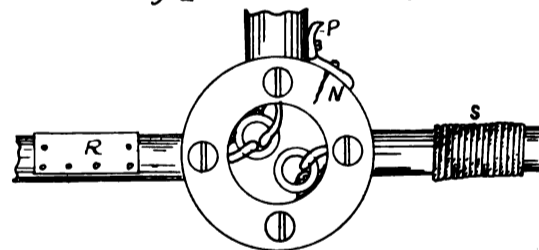


Fig 6

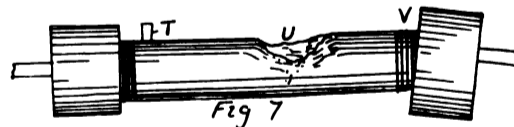


Fig 7

ELECTRIC WIRING IN THE HAWAIIAN ISLANDS.

(H), Fig. 3, the tube being fractured from the flange (G). In Fig. 4 is the way some of the machinists adjust a meeting of tubes. An inner sleeve (I) is brazed or soldered in, and an outer ring (K) is set on. I saw some of the tubes with patches like (M) on them (Fig. 5), to cover pinholes. Other holes of larger size were plugged with screws tapped and threaded in like (L).

In Fig. 6 we have a sketch of a combination porcelain thimble which I noted was in service in several places where wires required protection, and where the branches protruded on the plan presented. I saw that the base of the circular portion was broken at (N), and a strip of brass was put on to aid in holding the broken piece together. This strip is marked (P), and it is riveted with pins. On one of the branches a patch of sheet-metal covered a hole, while at the opposite branch piece some twine was wound over and over a fractured portion of the pipe.

I saw a number of pipe-conveying devices for wires in the condition shown in Fig. 7, in which a portion of the wall of the pipe is depressed, as at (U), touching the wires within and doing damage. This depression can be restored by heating and by exerting interior pressure with expanding devices well known to the trade.

I noticed that some of the tubes were keyed with heads, as at (T), while the head pieces or flanges of

others were screwed on, as at (V), in which case some of them were wrenched to one side, like the sample.

Where spiral springs were used for sustaining the pressure on pin shafts, as in Fig. 8, many of these springs were broken, like (A), leaving the shaft (B) without the necessary force for closing itself. In repairing these springs, I noticed that in one case the machinist made the fit like that in Fig. 9. This caused the shoulders (E) and (D) to bind and also threw the spring spindle out of line at (C), all of which was finally restored to proper shape by overhauling and readjusting.

Fig. 10 shows how many of the disks get cracked. Screws are employed, which are bent over, and the disk is broken at (F). I also saw some leaders put in, as shown in Fig. 11. A wedge (G) was driven in, and this caused the thing to tip to one side. The manner of plugging places with wood pieces for nails for holding brackets for wires, etc., is shown in Fig. 12. The plug of wood is cemented in firmly in the plaster, and usually a fairly strong fit is assured, into which nails can be driven.

Fig. 13 shows another form of wire carrier which is popular here. There are little tubes fixed inside the main tube, and the wires are passed through these to any point desired. A common thimble for sinking into plaster with screws is shown in Fig. 14.

The electrical transmission lines now pretty thoroughly cover Honolulu and the outlying districts, and are of much usefulness to the commercial, manufacturing and military circles of the islands. There are American and foreign electrical machinists in the business here, but much of the work is done by native machinists. There is a dearth of proper supplies for the telephone and telegraph lines, and more supplies and general fittings should be sent here. There is always a shortage of wire, instruments, batteries and all furnishings. Poles and cross-arms are plentiful, as they can be cut from a hundred different places. There is an abundance of good native labor for working on the lines, and there are now natives who are familiar with sending and receiving messages over the wires, as they are quick to learn and take a great interest in the business.

There is a great need of a cable here connecting

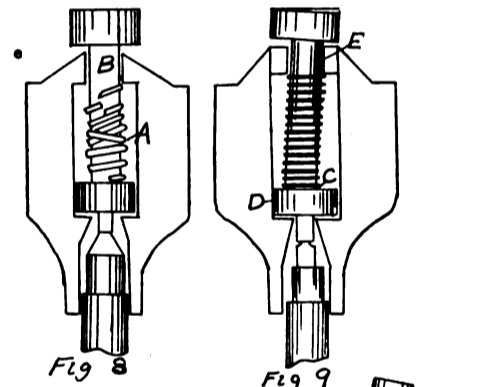


Fig 8

Fig 9

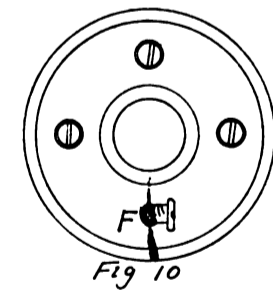


Fig 10

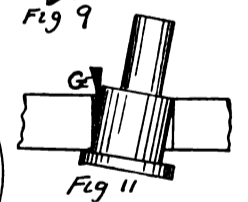


Fig 11

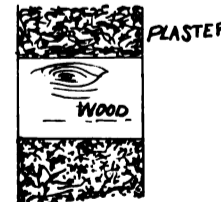


Fig 12

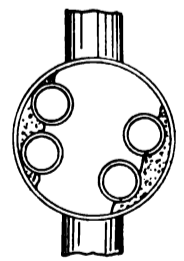


Fig 13

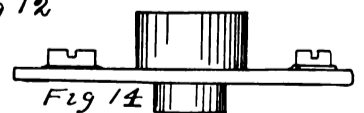


Fig 14

ELECTRIC WIRING IN THE HAWAIIAN ISLANDS.

with the United States. All of the army officials, business men and tourists refer to the need of a cable, and it is hoped that one will be put in soon. The Signal Corps men, with competent officers in charge, are doing as good work in the islands as their fellows are doing in the Philippines, where the service is more active.

The New Orleans City Railroad company, New Orleans, La., has secured a franchise to build a belt line in the suburbs, at an estimated cost of \$12,000.