Elmer A. Sperry, born Cortland, N.Y. Oct. 12, 1860, passed through the three departments of State Normal school at Cortland and attended special lectures at Cornell University; Electrical Engineer of the Sperry Electric Light, Motor & Car Brake Co.; Proprietor and Chief Engineer of the Elmer A. Sperry Co. afterwards the Sperry Electric Mining Machine Co. now the property of the General Electric Co.; at present Electrical Engineer of the General Electric Co. and of the Sperry Electric Railway Co. 29 Broad way, New York. Have taken out 72 patents.

My principal work from 1880 to 1884 was in arc lighting, being the development of the independent feed lamp, the automatic current regulators and later the perfection of the reactionary effect between the armature and field allowing the rotating of the brushes, controlling thereby the E.M.F. through at first a small range which I afterwards increased to total range from 0 volts to 3000 volts on the "60" arc light machine without the least evidence of sparking and actually burnishing of commutator as in best constant potential work. This was accomplished from 1884 to 1888. Latterly this range has been extended to include variable current. The present machine has variable E.M.F. through its entire range not only with constant current, but will allow of its current being varied through a 60% range with entire absence of spark. For instance same machine has full range of E.M.F. with a range of amperes from 5 to 12.

Upwards of 12000 of these lights are in use. Within two months a single order for fifty-eight 50-light machines has been received from the City of Cinninati.

I owned and operated the first large Central Station of arc lighting in this city, operating all wires underground, afterwards sold to Chicago Arc Light & Power Co. At this time was active in organization of the electric lighting interests for mutual inter-

change of ideas &c. and was appointed Chairman of Committee of Call of first convention at Chicago in 1885, (see accompanying fragment of original announcement). About this time I went to New York to aid in organization of, and became charter member of this Institute.

As to mining machinery I have designed and put into operation a number of machines and plants for the mining of coal and handling it underground. For description of my work in this line I refer to recent Institute paper also paper before the Mining Institute of Illinois. Following is a list of my Electrical Mining Machines which are in commercial form as evinced by their use and duplicate orders received for same. Direct Blow Pick Machine; Shearing Machine; Longwall Machine; Room and Pillar Machine; Breast Machine and Electric Blasting Drill. These machines are in operation in Ohio, Illinois, Kentucky, Missouri and Kansas.

I have designed the constructed three types of electric locomotives containg <u>eight</u> driving wheels driven from a <u>single</u> motor, adapted to take short radius curves, and work on light track with heavy draw bar pull. Of these locomotives there are two 10-ton in Illinois and Kentucky; three 8-ton, in Indiana, Kentucky and Illinois; and one 12-ton in Ohio. These machines are operating entirely in underground service and some on very long hauls. Duplicate orders would indicate that a commercial article has been reached in this machine.

I have perfected a number of special devices found necessary in handling these heavy currents in mines. In the case of one large mine I have laid down a plant for operating two large rope haulage systems by electricity and a number of pumping plants, one of which is lifting water 750 ft., 5" discharge.

I have developed a special heavy mine type dynamo for use with these plants. Among the plants at mines I have one of 300 HP dynamo capacity; seven of 150 HP, one of which is about to be increased to a 300 HP; and one of 250. Engineering in all these mining plants has been directly under my supervision.

In respect to electric street cars I have undertaking the developement of a system which has been for some time in successful operation under very severe conditions in Youngstown, Ohio, and is now being placed upon a number of other lines. The equipment is a radical departure from other standard equipments, the motor being totally elastically supported and entirely free from the axles and from the vibrating part of the truck frame, and single reduction, driving both axles. In the power connectionbbetween the motor and the axles an elastic medium is located, constituting at the same time a universal connection which enables the rotating elements to sustain an excentric relation while performing the function of power driving connection. Other features in this connection allowing the truck entire freedom of movement are successful in practice.

Beside the regular four-wheel equipment, two equipments have been constructed in which a feature has been reduced to practice consisting of an elastically supported single motor driving all 8 wheels of the ordinary double truck car. These trucks are of the ordinary commercial type and take the shortest curves. The cars are 34 ft in length, weigh 12 tons and are speeded at 18 miles per hour.

Elmer A. Sperry.