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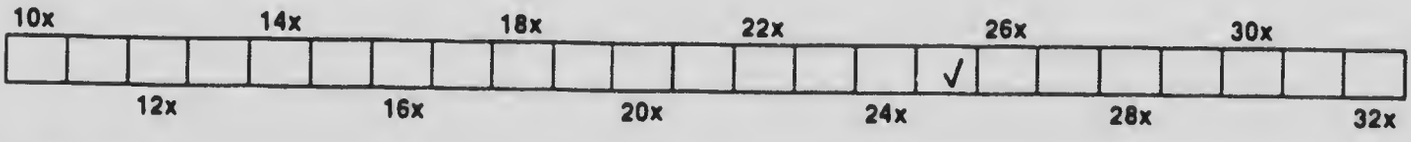
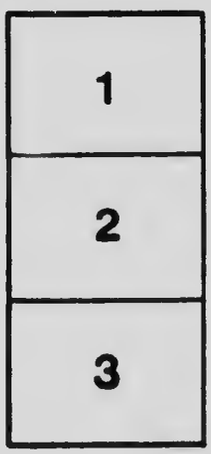
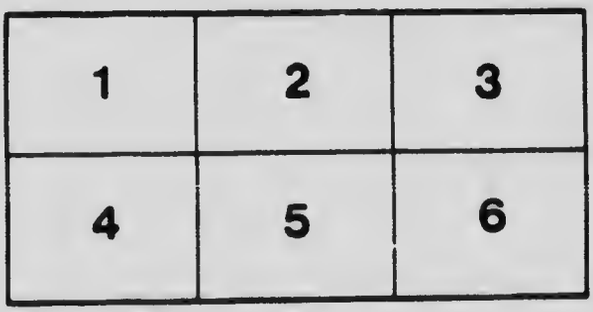
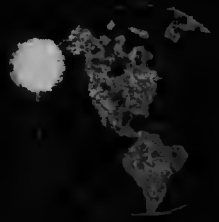


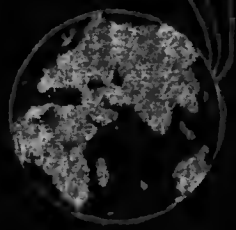






THE

STARK ELECTRIC SYSTEM




THE STARK T.L.&P.
COMBINED
TELEPHONE
TELEGRAPH
LIGHT
POWER
SYSTEM LIMITED.

THE STARK T. L. & P. SYSTEM

LIMITED.

(TELEPHONE, LIGHT AND POWER.)

INCORPORATED UNDER THE ONTARIO COMPANIES ACT.

AUTHORIZED CAPITAL, - - - - $1,000,000.

Offices

113 MANNING CHAMBERS, TORONTO.

Directors:

Hon. JOHN DRYDEN, President,
Minister of Agriculture, Province of Ontario.

R. Y. ELLIS, Vice President and Managing Director,
Director Crown Bank of Canada, Toronto.

ALEXANDER M. STARK, Inventor of the "Stark Electric System," Toronto.
JAMES GUNN, Superintendent of Toronto Railway Co., Toronto.
W. B. ROGERS, Managing Director Chas. Rogers & Son[illegible], Limited, Toronto
HON. GEO. E. FOSTER, Vice President and General Manager Union Trust Co., Toronto.
J. BLACKLOCK, Manager Reliance Loan & Savings Co., of Ontario, Toronto.
WILLIAM HINTON, Pres. W. & D. Dineen Co., Limited, and Director Sovereign Life of Canada, Toronto
JOHN McCLELLAND, Vice President Parry Sound Lumber Co., Limited, Toronto.

Solicitors

MESSRS. McKAY, DODS & GRANT, Toronto

Secretary

W. N. DOLL, M.

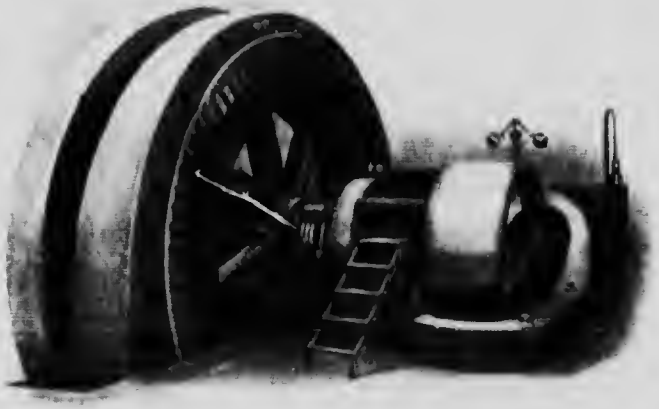
THE "STARK" SYSTEM.

Combined Telephone Telegraph, Light and Power

TELEPHONE

WHAT IT IS AND WHAT IT DOES

IT is well known that modern telephone practice has made a great advance by centralizing the electric energy needed by subscribers for talking and ringing. By bringing about this centralization many desirable results are obtained. The idle capital represented by the subscribers' local batteries and the calling generators is done away with. The labor of visiting or inspecting the subscribers' apparatus is greatly reduced that necessary to repair and renew batteries, together with the expense of material for such renewal, being rendered nil. The electrical efficiency of the plant is greatly increased by having large batteries in operation at the "Central Office" continuously, instead of a small battery in each subscriber's 'phone. All



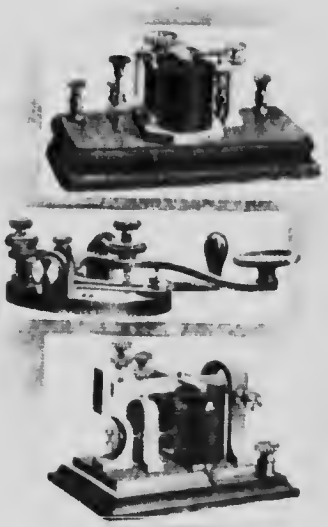
CENTRAL STATION POWER PLANT

these advantages were achieved by the introduction of the common battery or central energy system, whereby the whole of the current necessary to operate a large telephone exchange is generated at the "Central Office."

In the central energy system the indicator drops in the "Central Office" have been replaced by small electric lamps, the lighting of which is the signal to the operator that a subscriber is calling. For instance, in an exchange of ten thousand lines, there are ten thousand such lamps, in addition to which are a large number of supplementary lights for "clearing out" or "disconnecting" signals, etc. Each modern telephone exchange is therefore, to a limited extent, a combined telephone and electric light plant.

The question naturally occurs to the mind of the average thinking person that, if electric lamps can be lighted at the Central Office end of the telephone line, why not at the subscriber's house or office? The reason why this has not been possible in the past is that the current employed is of too low a voltage to light the ordinary electric incandescent lamp, and the circuits employed are only adapted to telephone working.

The inventor of the "Stark" System, Mr. Alex. M. Stark, who was until April, 1903, Superintendent of Equipment and Service for the Bell Telephone Company in Toronto, Canada, and who had charge of the telephone system for nearly a quarter of a century, in fact, from its inception in that city,—became impressed with the idea that it would be a source



of great economy if a central energy system could be devised, which would enable a current of sufficient voltage to be delivered at the telephone subscriber's premises to provide him with light and power also. As a result of continued experiments, he succeeded in perfecting a system by which it is possible to use an ordinary electric light direct current of 110 volts for the operation of telephone instruments, without possible danger thereto or to the user thereof. Owing to this new development, every telephone subscriber under the "Stark" System can now be supplied with a current which will light any number of lamps that may be required, in addition to driving motors, operating telegraph instruments, electric bells, fire and burglar alarms, or for any purpose for which electricity can be utilized.

In the "Stark" System, the current necessary for all services is distributed from the generator at the Central Station (where a telephone switchboard is also

located) over the same main power circuit, from which service-wires are taken to the subscriber's premises, in accordance with the present method adopted by electric light companies. In addition to this, only one wire is carried between the Central Station and each subscriber's telephone, thereby effecting a saving of the second wire necessary with existing telephone systems.

Immunity From Danger.

In the "Stark" System there is an entire absence of "high tension" or "alternating" currents on the "mains" between the generating station and the subscriber's premises. As the electro motive force employed on the circuits at no time exceeds 115 volts, (the normal voltage being 110) no transformers are required: the current being generated at this low voltage at the Central Station and transmitted direct to the consumer, all liability to danger or accidents of any kind is therefore entirely eliminated. In view of the large number of fatalities, fires, and other accidents which occur every year in connection with electric light systems employing high tension alternating currents and transformers, the immunity from danger obtained under the "Stark" System is an advantage, the importance of which cannot be too strongly emphasized. In the handling of the telephone or other apparatus of the "Stark" System on the subscriber's premises, it is impossible, by any manipulation,

LIGHT

for the user to obtain an electric shock of even the mildest nature.

Among other advantages to be obtained by the adoption of the "Stark" System are the following :

Economy of Construction.

The cost of constructing the outside plant (which includes telephone, telegraph, light and power) will be little in excess of that of building the conduits, poles, wires, etc., for a modern telephone system only. From this it will be seen that the "Stark" System renders possible an economy absolutely unattainable in any other. In other words, the necessity of constructing a separate telephone plant and an electric light plant is entirely done away with, and the saving thus effected will make possible a great reduction in the cost of these utilities to the public. The System requires only one generating plant, where two are employed to-day, thereby securing not only a saving in the cost of construction, but in the operating expenses also.

Under present conditions two No. 10 guage copper wires are used for each subscriber's telephone circuit, while the "Stark" System requires

only one No. 22 wire for the same purpose. Therefore a cable of equal diameter would accommodate three times the number of telephones as is now possible under existing methods of construction.

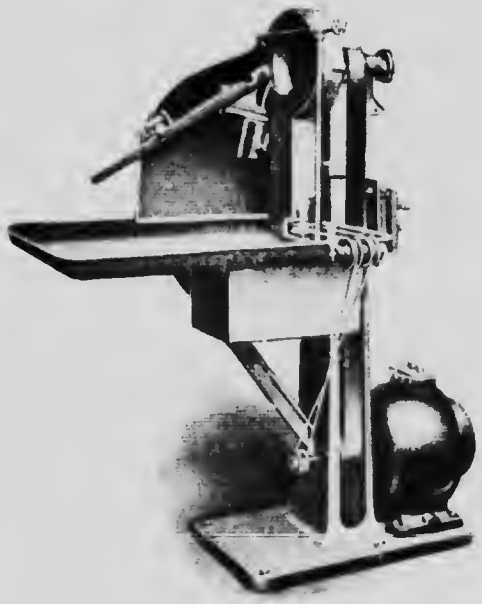
Further than this, by reason of the increased voltage, perfect transmission of speech is obtained for five times the distance from the Central Office as is now possible over conductors of equal size and electrical resistance.

As the same conduits would carry the mains for all services, the number of underground ducts would be reduced to a minimum and the amount of trenching would be lessened. The system of distributing wires could be so laid out as to avoid congestion, and the present chaotic web of underground and overhead electric light and telephone wires replaced by one well ordered and clearly defined system of conduits carrying the mains for every kind of electric service. These new conditions cannot fail to be a source of economy which has not heretofore been attained in electric light and telephone construction.

Economy of Operation.

The "Stark" System makes possible the following :

A Telephone Company employing the manual system of switch board operating would be enabled to distribute current for an electric light service also, without increasing its working expenses per annum.



POWER

Or an Electric Light Company could furnish a telephone service, at its present cost of operation and maintenance, plus the telephone operators' wages only.

It is obvious, therefore, that where an automatic telephone exchange is installed in combination with the "Stark" System, (as this Company has done at Toronto Junction,) the wages of the "operators" will be saved, and one managing and maintenance staff would only be required in connection with the supply of a combined telephone, electric light and power service.

The Telephone Situation.

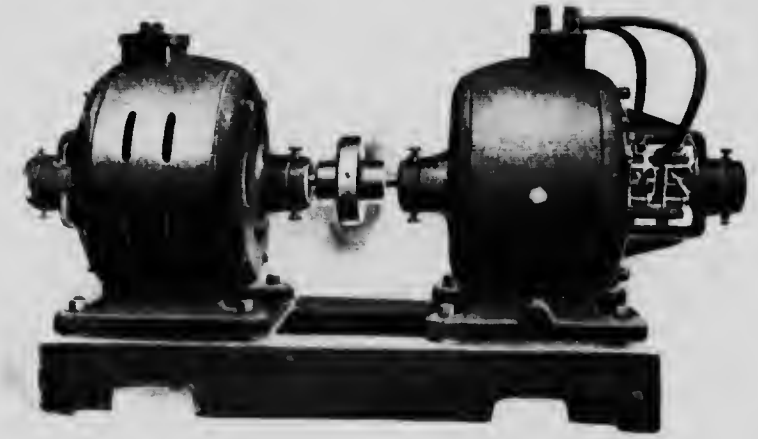
This is peculiarly the age of the telephone. Great strides are being made in European countries and in the United States in simplifying, extending

and cheapening this service, and bringing it within the reach of the farmer, the artisan, the small householder and business man.

Independent companies have been multiplied, monopoly has been broken, exorbitant rates have been cut in two; there being upwards of 6,000 independent exchanges, with 2,500,000 subscribers, in the United States alone.

In Canada the demand for cheap telephone service was never more in evidence than to day. The "Stark" System will meet this demand in a degree not possible by any other means, as not only will it enable telephone service to be supplied at rates that will make it accessible to all classes of people, but in addition thereto, electric light and power users will enjoy the benefit of these utilities at greatly reduced cost.

ELECTRIC FAN



SUB-STATION POWER PLANT

System in Operation.

The Company has obtained from the Town of Toronto Jun[illegible]ntario, a franchise for supplying telephone, light and power service for a period of twen[illegible]rs. At this place the System is in full operation, affording a complete demonstration [illegible]he practical working of electric light, power and telephone services under the "Stark" patents, in combination with the [illegible]matic system of telephone operating, in which the connection[illegible] made without the n[illegible]liation of the girl attendant.

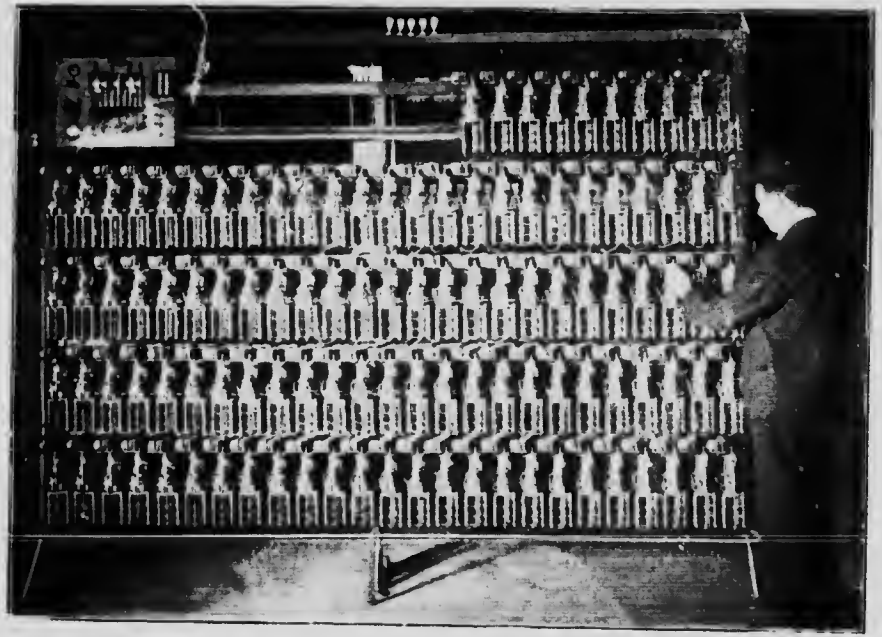
The Company will be pleased [illegible]afford all persons interested [illegible]operation of telephone or electric light plants every [illegible]cility to examin[illegible] and [illegible]te the "Stark" System now working at Toronto Junction. The plant in [illegible]peratio[illegible]his place fully demonstrates the practicability of the combined workin[illegible] the [illegible]ctrical utilities which the "Stark" System makes possible.

SUBSCRIBERS AUTOMATIC TELEPHONE
(WALL TYPE)

Automatic Telephones.

The Success of the "Strowger" Automatic Telephones, which are installed in connection with the "Stark" System at Toronto Junction, Canada, is strikingly demonstrated by the exchanges in operation in the cities named herein.

It is the only perfect working, absolutely automatic Telephone System, adaptable to any size exchange, that has been adopted and is in general use in this or any other country. It has long since passed the experimental stage, and is rapidly replacing manual switchboards in the independent telephone exchanges in the United States, where it is proving profitable to the operating companies and profitable to their patrons.



A SECTION OF "STROWGER" AUTOMATIC TELEPHONE EXCHANGE COMPRISING 100 SUBSCRIBER'S CONNECTORS AS INSTALLED WITH THE "STARK" SYSTEM AT TORONTO JUNCTION, CANADA.

AN ENLARGED VIEW OF A SUBSCRIBER'S AUTOMATIC TELEPHONE CONNECTOR.

The "Strowger" Automatic Telephone Equipment has been adopted by Independent Telephone Companies in the following cities and towns:

	No. of Telephones		No. of Telephones
Chicago, Ill.	10,000	Los Angeles, Cal.	4,000
Grand Rapids, Mich.	5,400	San Diego, Cal.	1,500
Columbus, Ohio	8,000	Hopkinsville, Ky.	800
Dayton, Ohio	6,000	Sioux City, Iowa	2,000
St. Mary's, Ohio	500	Manchester, Iowa	300
Lincoln, Neb.	3,000	Cleburne, Tex.	540
Auburn, N. Y.	1,200	Columbus, Ga.	700
Portland, Maine	2,500	Augusta, Ga.	900
Lewiston, Maine	1,500	Medford, Wis.	200
Auburn, Maine	1,200	Westerly, R. I.	200
Fall River, Mass.	1,250	Princeton, N. J.	150
New Bedford, Mass.	800	Albuquerque, N. M.	400

In Canada:

Toronto Junction, Ontario, (Stark System)	100	Woodstock, N. B.	120

and many smaller exchanges.

THE "STARK" SYSTEM

COMBINING

The Stark T. L. & P. System, Limited.

HEAD OFFICE

113 MANNING CHAMBERS, - TORONTO, ONT.

(INCORPORATED UNDER THE ONTARIO COMPANIES' ACT)

AUTHORIZED CAPITAL

$1,000,000

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JOHN McCLELLAND, Esq.
Vice-President Parry Sound Lumber Co., Limited, Toronto.

Solicitors:

MESSRS. JOHNSTON, McKAY, DODS & GRANT, Toronto.

Secretary:

W. N. DOLLAR.

THE

Stark T. L. & P. System

LIMITED

(Telephone, Light and Power)

ONE CIRCUIT

ONE SYSTEM OF WIRING

ONE MAINTENANCE STAFF

ONE MANAGEMENT STAFF

FOR ALL SERVICES

Immunity from Danger.

Economy Otherwise Unattainable

Highest Efficiency.

Lowest Rates.

THE "STARK" SYSTEM

COMBINING

Telephone, Electric Light, Telegraph, Electric Power.

OVER ONE CIRCUIT

IN OPERATION BY

THE STARK T. L. & P. SYSTEM, Limited,

HEAD OFFICE, TORONTO, ONT.