
FENCE LINES IN AUSTRALIA.

The long wire fences which many Australian herd owners have been compelled to make to protect their lands from the rabbits, are now used to a great extent as telephone conductors by which the neighbors communicate with each other. In many cases the distance covered is as great as fourteen miles. Altho the wires are somewhat defectively insulated, they perform their function in an excellent manner.

TRADE NOTES.

THE H. B. CAMP COMPANY, Chicago has just issued a new line of attractive folders on the subject of Camp conduits which will be sent free to all interested parties.

THE STROMBERG-CARLSON TELEPHONE MANUFACTURING Company, Rochester and Chicago, has some attractive post cards which will be furnished free to its friends and customers.

TELEPHONE MEN interested in storage batteries for their central energy systems will be interested in the new catalogue just issued by the Zoar Storage Battery Company, of Zoar, Ohio.

O. F. FRENCH, formerly general manager of the Cuyahoga Telephone Company, of Cleveland, Ohio, has been appointed deputy minister of telephones, telegraphs and railways for the province of Manitoba. He will direct the construction of municipal and government owned telephone lines.

THE CLAY PRODUCT COMPANY, Chicago, Ill., and Brazil, Ind., has issued a very attractive catalogue, showing several new designs in clay conduit which are intended to be economical for the consumer. The catalogue also includes considerable valuable information on the manufacture and laying of conduit.

THE AUTOMATIC ELECTRIC COMPANY, Chicago, pulled off another good advertising "stunt" last month when it published a fac simile reproduction of the telegrams received by Mayor McClellan of New York City regarding Automatic apparatus. Copies of these telegrams in bound form can be had for the asking.

W. O. RHODE, formerly manager of the Swedish-American branch house at Kansas City, Mo., has been appointed manager of the Century Telephone Construction Company's branch, which was opened July 1st at 408 Delaware street, Kansas City. The Century company will carry a full line of supplies and telephone apparatus at its Kansas City branch to supply the southwestern trade.

THE WEINSHEIMER COMPANY, recently incorporated in Chicago, with offices in the Monadnock Block, announces that it has taken agencies from Machado & Roller for the Whitney electrical instruments and from the Leeds & Northrup Company for its electrical measuring instruments. W. E. Weinsheimer is president; P. R. Fisher, vice-president, and E. Switzer, secretary and treasurer.

AN UNUSUALLY ATTRACTIVE ADVERTISING souvenir has been put out by the Vote-Berger Company, of LaCrosse, Wis., in the shape of a handsome celluloid and metal calendar which is so arranged as to be perpetual. "They stay put" is the motto of the Vote-Berger Company in describing its two ball adjusters for incandescent lamps, and the calendar demonstrates the same principle. The souvenir is one of the neatest issued this year.

THE ROCHESTER SEWER PIPE COMPANY, Rochester, N. Y., is mailing out post cards presenting the following points of superiority claimed for its conduit: Thoroughly glazed and vitrified; smoothness of inner surfaces, preventing injury to cables; absolutely no defects; square and straight—connections perfect; clays thoroughly ground and tempered; heat controlled by electrical pyrometers guaranteeing proper

curing of the ware, good vitrification and and thorough salt glazing.

BAY STATE INSULATED WIRE AND CABLE COMPANY, Hyde Park, Mass., announces the completion of its extensive new wire mills, and states that it is now ready to manufacture insulated wires and cables of every description. The capacity of the mills is at present 500,000 feet per day; with additional machinery under construction that will enable the company to turn out twice as much work. The president, Mr. Andrew J. Conlin, was for the past eighteen years superintendent of the plant of the Simplex Electrical Company, at Cambridge, Mass., and, having held other positions of importance in the manufacture of insulated wire, is looked upon as an authority in this particular line. The treasurer and manager, Mr. John H. H. McNamee, formerly mayor of Cambridge, Mass., will look after the company's financial and business interests. Mr. Alfred W. Worthley is in charge of the sales department, which he will be well able to handle, having been associated formerly with the Eastern Electric Cable Company. The company intends to furnish its customers only the best of material, prompt deliveries and reasonable prices. It will be pleased to answer all inquiries.

TELEPHONE RULES IN AUSTRALIA.

Australia is a long distance from the United States, but the telephone exchanges in the antipodes are adopting some of the regulations in vogue here. Instead of the operator saying that the line of a called party is "busy," however, the Australian operator says "engaged," which is not so terse and business-like as the Yankee phrase. The telephone system in Australia is under the control and direction of the Colonial postal authorities, which have issued rules governing the service. The instructions say: "Telephone attendants should, when answering a call, give the name of the exchange only, and repeat the exchange and number required when such have been given. In the event of the number asked for being engaged, the reply should be 'three four five' (or other number, as the case may be) 'engaged.' When repeating numbers, attendants will invariably say the word for each figure. The cypher or zero (o) will be designated 'Oh,' and not 'nought,' 'aught,' or 'nothing.' A repeated figure must be indicated, as 'double —.' Thus, 2243 must be repeated as 'double two four three.' Thus, following examples will indicate the correct method: 4235, four two three five; 4000, four thousand; 4111, four one double one; 4226, four double two six; 400, four double oh. If subscribers and others using the telephone will also adopt the foregoing method of giving the required numbers to the exchanges, any misunderstanding or unnecessary discussion will likely be prevented."

Here's an odd story from the Pacific coast. Because February was a short month the Sunset (Bell) Telephone Company "docked" operators in the Seattle exchange—and would not give them a full month's pay—and many of the company's patrons, learning of this policy, when the telephone bills were sent around, refused to pay the regular rate, insisting on a corresponding reduction. Dr. R. L. Chase is one of these. When the collector presented his bill the physician made the reduction and his reply to the protest was that if the company did not like it, it could take out the telephone. Similar tactics were employed by others, to the great gratification of the telephone girls.

ules which is giving us the most useful results and not the surface contact between the granules and the electrodes.

Referring to Figure 8, we have before us a diagram of an instrument which possesses the advantages of the instrument shown by Figure 6 in the direction of all carbon granules being contained in the case *D*, which is carried back and forth while the diaphragm is causing the electrode *A* to play back and forth. In this type of transmitter, however, the electrode *B* is made the larger one and it is connected by a flexible disc *E* with the casing *D*. Electrode *A*, known as the front electrode, is also connected with the casing *D* by means of the flexible disc *C*. Now, with the electrode *B* solidly mounted in the bridge of the transmitter, it is obvious that when the electrode *A* moves towards the electrode *B*, the disc *C* flexes and the casing *D* causes the disc *E* to flex also. It is here that we have the difference in the Figure 6 and Figure 8 types of instrument. In Figure 6 the casing enclosing the movable electrode carries all the carbon granules directly, while in Figure 8 the casing carries the granules in an indirect manner owing to the flexing of the disc *C*.

It is obvious that a form of construction may be adopted which may permit using either mica or metal for the flexing discs *C* and *E*. Upon analyzing this type of the transmitter, as shown by type 3, Figure 5, it will be found that under *A* the instrument is similar to type 2. In *B* it is similar to type 1, and under *E* it is distinctly different from types 1 and 2, owing to the connecting element *E* being of a flexible character.

Referring to Figure 9, we have a type of transmitter in which the electrode *B* is solidly mounted into the diaphragm of the transmitter. The connecting means, *E*, is, of course, solid. The electrode *A* is mounted so as to be fastened to the bridge of the instrument. *C* is of mica and of a flexible character. The operation of this instrument is obviously to the effect of permitting the carbon granules to be thoroughly agitated whenever the electrode *B* and its diaphragm are placed into vibration. It will be observed, however, that any undue strain upon the diaphragm will affect the adjustment of the front electrode toward the rear. This effect is not present in the instrument shown in Figure 6, where the diaphragm is so placed that the microphone movement may be removed from it without disarranging the position of the diaphragm.

In the first installment of Mr. Clausen's series on "Telephone Transmitters of Today," which appeared in the September issue of *TELEPHONY*, was the following paragraph:

In other words, if we take a metal electrode transmitter and find that it gives excellent service for a considerable period of time when used in connection with a current not running over three or four volts potential and place such a transmitter in connection with a high voltage circuit, it may be found, and generally is found to result in a burning, fusing or melting effect where the carbon granules lie into contact with the metal surface of the electrode, and it is this fusing which produces an unequal surface on the electrode and in course of time results in producing what we recognize as the "packing" effect.

In reference to the above *TELEPHONY* has received the following communication from the engineering department of the Century Telephone Construction Company, of Buffalo, which it is glad to print in this connection:

"Our platinum electrode transmitters have been on the market for over five years, and a very large number of those in use are operated in connection with common battery exchanges where a high voltage is necessary, and, to the best of our knowledge, no difficulty has ever been experienced by burning, fusing, or melting of the electrode nor in the packing of the transmitter.

"As our information comes from actual experience, it is more than likely that Mr. Clausen in his article referred to metal other than platinum."

"In this statement it is reasonable to suppose that the platinum electrode transmitter might be included, by those

unfamiliar with its qualities. Defects such as cited in this paragraph have never occurred and never can occur in the platinum electrode transmitter, either with a high or low voltage, and we believe it is only fair to draw the attention of *TELEPHONY*'s readers to this fact."

(Signed) ENGINEERING DEPARTMENT,
CENTURY TELEPHONE CONSTRUCTION COMPANY.

TELEPHONE IMPROVEMENTS IN AUSTRALIA.

TELEPHONY has received a letter from a correspondent in Melbourne, New South Wales, a telephone man, in which he gives some interesting information concerning telephone improvements in that city. John Hesketh, whom he mentions, will be remembered as the famous expert who participated in the electrical and telephone congress at the World's Fair at St. Louis in 1904. Among other things the correspondent writes:

"Further information concerning the program of improvements of the Melbourne metropolitan telephone system, which is to accompany the introduction of the measured rates system, has been given out by Mr. Hesketh, the chief electrical adviser of the central postal department, by permission of the postmaster general. Mr. Hesketh, more than any other man in the public service, is responsible for the conversion, first of the postmaster general, next of the government, and finally of the commonwealth parliament, to the substitution for the present flat, or unlimited, service rates of a system of measured rates or toll charges. Alongside his work for the commonwealth as a whole, Mr. Hesketh has been making preparations for a regeneration of the extremely unsatisfactory and defective telephone service rendered in Melbourne and suburbs; and when it was resolved last year to expand the general postoffice by building a new, permanent wing, he was successful in inducing the postmaster general to seize the opportunity for introducing reforms which will within the next few years result in a complete metamorphosis of the metropolitan telephone system. These reforms involve the expenditure of \$1,250,000, at the rate of about \$250,000 a year, during the next five years. As a preliminary, 7,000 new telephones for the existing subscribers are on order, and will be installed as fast as they can be delivered. The grievances of the suburban exchanges are to be met by action which will in a few months cause the removal of many disabilities under which subscribers outside Melbourne proper are laboring. This action involves the erection of a large number of lines between branch exchanges and the central exchange. Malvern and Hawthorn subscribers, whose local exchanges are much congested, will be amongst the first to benefit. The metallic circuit is to be introduced in districts where the lines are subject to much interference.

"It has been announced that the annual rate for Melbourne, Sydney, Adelaide and Brisbane, covering 2,000 free calls, will be \$25 for an exclusive line. To many, this has conveyed the idea that the rate applied only to Melbourne proper and the heart of the other capitals, and did not cover the suburban exchanges. Mr. Hesketh dissipated this notion. 'The rate of \$25 a year for an exclusive line,' he said, 'applies to the whole of the metropolitan networks. By metropolitan networks we mean the area embraced in a circle around the general postoffice with a radius of ten miles. Anybody within that circle must pay at the rate of \$25 a year for an exclusive line.'

"There is now great activity in the Victorian Electrical Branch of the postal department with regard to the changes now in progress, Messrs. Jenvey and T. Howard, the principal officials in charge of local details, having been working at high pressure for some weeks in order to keep pace with the directions of the postmaster general and the central administration."

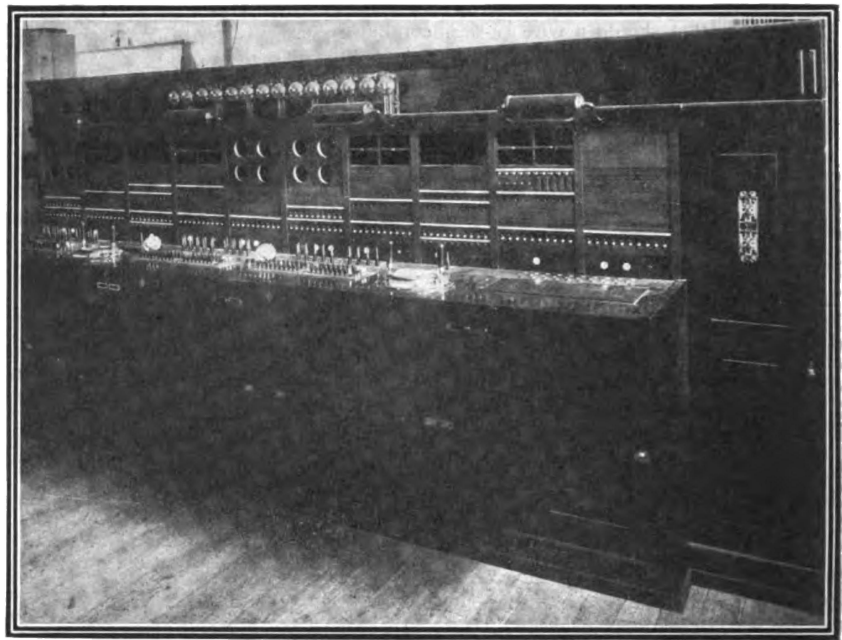
The Automatic at Geelong, Australia.

At 11 o'clock Saturday night, July 6, 1912, the new automatic telephone exchange at Geelong, Australia, was cut into service. This being the first installation of automatic telephone equipment in Australia it had been looked forward to with a great deal of interest by the Post Office officials, under whose jurisdiction the telephone systems are operated, as well as by the public at large.

The Melbourne Argus, commenting on the cut-over had the following editorial in the issue of July 9: "Not the least striking of the achievements of modern inventive genius are those directed towards the perfection of the telephone. The strides that have already been made are nothing short of wonderful. A couple of years ago the common battery system, when installed in metropolitan exchanges, was hailed as a time-saving, temper-sparing advance upon the old switchboard, but the glow-light idea is now a back number. Geelong is served by the latest thing in telephonic systems—an automatic telephone, by means of which every subscriber becomes his own connecting agency, and the bulk of the old worries of telephone users disappear."

Due to the fact that the cut-over was made near midnight the traffic immediately thereafter was not very heavy, but on the following two days the system was used quite freely by the subscribers in experimenting with the new type of apparatus and much praise was given on account of the excellent operation of the system. The records for the first two days the equipment was in service showed only 14 cases of trouble reported, which is remarkable for a complete cut-over.

The central office equipment consists of 900 independent lines, 100 four-party lines and 100 lines to be used for trunks to and from private branch exchanges. The switches for these latter lines are so arranged that any number of trunks may be connected to any one particular private branch exchange system using the same terminal number for all trunks, a call

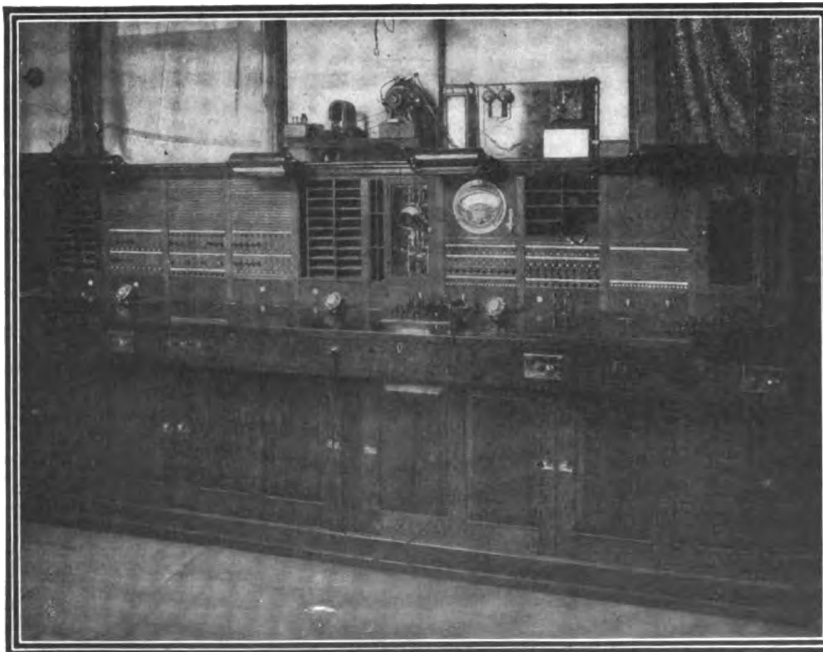


Toll Board in Geelong, Australia, Automatic Installation.

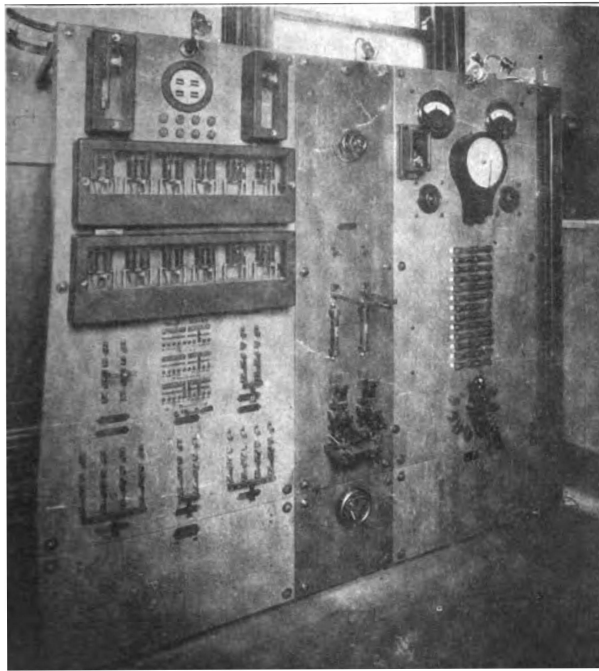
being made to the private branch exchange selecting the first idle trunk. Each one of the independent lines is equipped with a meter for recording the number of messages originating from that line; this meter, however, does not operate until the complete call has been made, that is, until the called subscriber has answered the telephone. For metering party line service, a meter box is installed at the subscriber's instrument. In making a call from a party line telephone, the subscriber will complete the connection in the usual manner, but will be unable to carry on a conversation as the receiver of the calling instrument will have been shunted and the transmitter springs shorted. When the called party has answered, which will be heard indistinctly by the calling party, the latter will press a button associated with the meter box, thus restoring the talking circuit to normal and registering the call.

One of the photographs reproduced herein shows five of the line switch units upon which are mounted 500 independent line switches, the meters associated with which are mounted in the upper part of the unit. These meters are very compact, mounted in dust-proof cases and can be read without removing the covers. The meters will operate over a line resistance varying from 0 to 1,500 ohms without any change of adjustment and do not register a call when "Information," "Complaint," "Long Distance," or any official of the telephone department is called by the public. The main distributing frame has 150 pairs of protectors and 208 pairs of line clips to the column. The heat coils have a resistance of 150 ohms and are guaranteed to blow on $\frac{1}{4}$ ampere in $2\frac{1}{2}$ minutes and to operate on a flow of .3 of an ampere in 10 seconds and carry .2 of an ampere indefinitely. Five ampere fuses enclosed in magnesia fire proof covers are provided and mounted on the main distributing frame. These were required by the government engineers, as no protection is provided for at the cable terminals in the outside plant.

The batteries are of the chloride type,



Four-Position, Wire Chief, Information, and Complaint Desk.



Power Board and Ringer Panel.

having sufficient plates to deliver 240 ampere hours. The cells are wood, having a lead lining and have an ultimate capacity for sufficient plates to give an output of 560 ampere hours. Counter cells are provided to be switched in series with the main battery to keep the voltage at the proper level. Two sets of charging machines are provided, one consisting of a motor generator and the other a gas engine, direct connected to a generator. These machines are so arranged that they can be connected in multiple with the storage batteries to furnish current to the switchboard, or can be used to operate the switchboard independently from the storage batteries. The machines are so wound as to automatically regulate themselves so that the voltage will not operate below 46 volts, nor rise higher than 52 volts when delivering current varying from full load to 1/15 thereof. The ringing apparatus consists of harmonic converters mounted in duplicate on a power panel erected alongside of the main power board. On this same panel are mounted the ringing interrupters and busy back signaling apparatus.

The installation also includes a two section, four-position toll board equipped with 60 toll lines, which are multiplied in each section. Two calculagraphs are provided and each position is equipped with eight pairs of cord circuits which have double supervision. All circuits represent the most modern development in toll board equipment. A two-section, four-position wire chief, information and complaint desk has been furnished which is thoroughly equipped to meet all the demands made upon such desks. The telephone instruments are of the Automatic Electric Co.'s standard type, equipped with series receiver requiring no induction coil. All of the equipment and desks were manufactured by the Automatic Electric Co., of Chicago, and installed under the supervision of its Australian rep-

resentatives, the Automatic Telephones Australasia, Ltd. Credit should be given the manufacturer for the excellent manner in which the apparatus was packed for foreign shipment, the only piece of breakage found upon unpacking, being one of the panels of the power board which was very easily and quickly replaced.

The result of the Geelong installation has been so successful that the Australian government has called for tenders covering automatic equipment for all or part of the cities of Perth, Sydney, Adelaide and Melbourne, and has just awarded a contract to the Automatic Telephones Australasia, Ltd., representatives of the Automatic Electric Co., of Chicago, for 4,800 lines of automatic equipment to be installed in the district exchanges of Balmain, Newton and Glebe, of the Sydney area. The equipment will be manufactured in the Chicago factory of the Automatic Electric Co.

The Wireless Cable Tester.

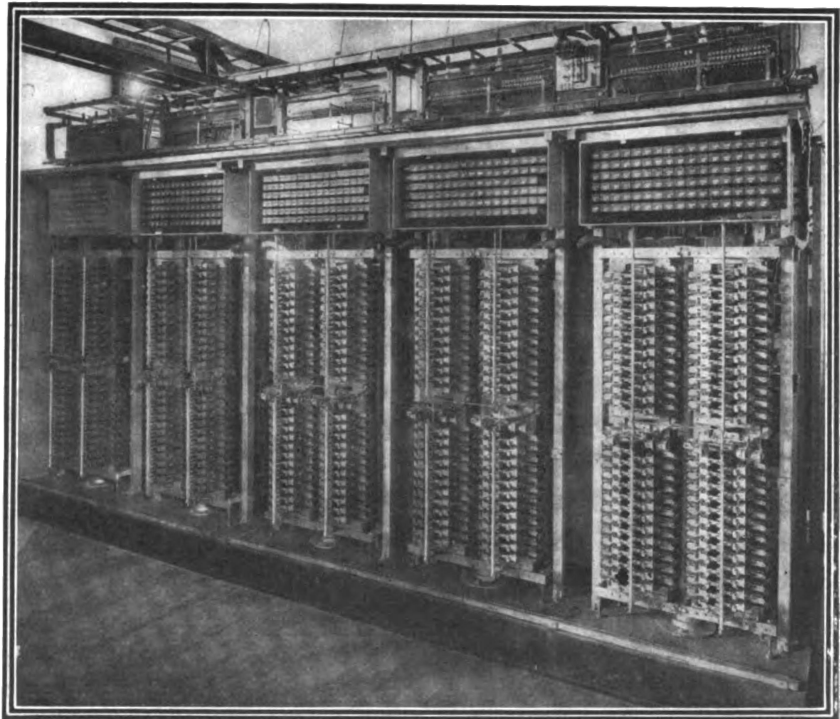
The Electric Specialty Mfg. Co. of Cedar Rapids, Iowa, reports that the year just closed has been the best since its Wireless Cable Tester was placed on the market.

A goodly number of orders have been received from foreign countries and the immense amount of cable which has been installed in this country during the past year has made a big demand for cable testers.

The manufacturers of the Wireless Cable Tester say that if it is possible to locate trouble without cutting the cable the Wireless will do it.

New Portable Insulation Test Set.

A new type of portable insulation testing set is being placed upon the market by the Leeds & Northrup Co., Philadelphia. The important features of the new set are sensitivity of the galvanometer, compactness, and ease of repairs to the galvanometer, should such repairs ever be necessary. The instrument is shown complete in Fig. 1. It measures, when the box is closed, 9 in. by 4 in. by 4 in. When the containing case is to be closed, the telescope, which is mounted on bearings, is lowered into a position parallel to the long axis of the box.



Group of Independent Line Switch Units, with Service Meters, Geelong.