COMMERCIAL POSSIBILITIES
OF THE

POULSEN TELEGRAPHONE

THE AMERICAN TELEGRAPHONE COMPANY

CHARLES K. FANKHAUSER & CO.
27 William Street, New York
35 Congress Street, Boston
North American Building, Philadelphia

140 NASSAU STREET

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UNIVERSAL·EXPOSITION·SAINT·LOUIS·MDCCCCIV

COMMEMORATING·THE·ACQUISITION·OF·THE·LOUISIANA·TERRITORY

COMMEMORATIVE·DIPLOMA

AMERICAN TELEGRAPHONE COMPANY

FOR LOAN TO UNITED STATES GOVERNMENT EXHIBIT OF

THREE TYPES OF PAULSEN TELEGRAPHONE FOR RECORDING AND

REPRODUCING SPEECH BY LOCAL MAGNETIZATION OF STEEL WIRE

Walter B. Stevens
SECRETARY

David R. Francis
PRESIDENT

THE POULSEN TELEGRAPHONE

AN INSTRUMENT WHICH PERFECTS THE TELEPHONE, SUPERSEDES THE PHONOGRAPH AND IMMENSELY WIDENS THE FIELD ON TELEGRAPHY

Records Sound

By the Telegraphone, the great Poulsen invention, the human voice is recorded and stored on a simple wire, or thin sheet of steel—without wax, without indentation, without a pin scratch or mark, without the use of any agency other than the invisible influence of electro-magnetism.

The sound waves, even to the minutest whisper or respiration, are electrically projected into the molecules of the metal—there to remain and be reproduced until a magnet wipes them off.

The Perfect Machine

It is the perfect talking machine, which was foreshadowed when Edison discovered the phonograph's power of doing a few of the things on cumbersome wax records that the Telegraphone, by the use of magnetism, accomplishes with scientific exactness.

It completes the telephone, where now lacking, because it makes a permanent record of all telephone transmissions.

Invention's Great Value Foretold

The coming of the Poulsen Telegraphone has been foretold for years.

Its value has been foreshadowed by the two other inventions which indicated to all the necessity of a piece of mechanism which would bring the two together.

Bringing Two Fields Together

Since the appearance of the telephone and the phonograph it has been fully realized that it remained for some genius to produce a machine which would perform the offices of both.

Much labor and capital have been expended in trying to make these two work together, but all effort in this direction has been futile. The telephone has occupied its field to itself, and the phonograph has been confined to a restricted and entirely separate field.

But each has gradually widened its work, with every step making more important the final appearance of the invention which must occupy both fields.

The Telegraphone is one of those few inventions which have appeared at long intervals that bring an immediate realization of the fact that they must exert a powerful influence in all departments of life.

Because the telephone is already one of the greatest and most valuable inventions in the world, the value of the Telegraphone is known, though by no means measured, by its usefulness in connection with the telephone alone.

Like the Telephone

When you have been made to understand what the invention is, not by this pamphlet, but by the words and opinions of the world's savants, you search your mind for inventions figuring in the enormous progress of the past century with which this one should be classed.

When the locomotive was invented the public little realized the important part it would play in the country's future—in the world's future. But when the trolley car invention came along years later, the part it would play was seen at once, *because the locomotive had become a great institution.*

When the telegraph first appeared it was looked upon as a scientific phenomenon of like value with other strange experiments pictured in the natural philosophies—of no commercial worth. What it would mean to us of to-day was not dreamed.

But when wireless telegraphy was announced its value, when it shall reach a perfected stage, was instantly seen, *because the world had already become a network of telegraph wires.*

One Lesson of the Past

Bell's telephone patents were lightly regarded a few years ago, and the instrument itself was held as a toy, or as an amusement apparatus.

People did not understand that it had any application to business life. Had they realized the immense value of the invention, many of those who overlooked the

opportunity to make hundreds of thousands of dollars out of a few shares of stock would have availed themselves of it with the utmost promptitude.

But now that the Telegraphone makes its appearance, its tremendous value along the same line is perfectly clear, and the general use into which it must come in a comparatively brief time is plain, *because the telephone has paved the way, and it is seen at a glance that one is not complete without the other.*

Made Way for Perfect Talking Machine

Edison's phonograph, the gramaphone, and all kindred wax-record talking machines, are just now reaching the fullness of their value, because the public did not at once realize their importance as inventions, confined though they are to rather narrow limitations of usefulness. The appearance of the Telegraphone is rendered immediately of immense importance, not only because the phonograph has paved the way, but much more so because the weaknesses of the phonograph as a practical business machine have made the public understand what a perfect machine might do, and accentuate the perfection of the Telegraphone, which does far more than the public has ever expected of any voice-recording and voice-reproducing machine.

A Scientific Wonder of Enormous Commercial Value

Unquestionably the Telegraphone is an electrical wonder—an unexpected application of electro-magnetism fully equal to the electric light, the trolley-motor, or the telephone.

Its commercial value has been demonstrated, because its need has been demonstrated and commented on in advance of its appearance, and its position as a most valuable invention has been thoroughly established by the widespread work already cut out for it by the telephone and the phonograph, and to an almost equal extent by the telegraph.

What Leading Scientists and Engineers Think of the Poulsen Telegraphone.

LORD KELVIN says

Lord Kelvin, the celebrated English scientist, on a recent visit to the United States, examined the Telegraphone, and gave his autograph letter as follows:

"Mr. Poulsen's Telegraphone is a very beautiful and interesting application of magnetism to record speech of the telephone. It seems to me likely to prove of great practical utility."

Mr. ALEXANDER GRAHAM BELL says

"I have been much interested in the Poulsen Telegraphone, which I spoke of to you in Paris, and I do not know of anything in the work of recent years in electricity more worthy of being presented to the readers of the Smithsonian report."

SIR WILLIAM PREECE, K. C B., says

"It is one of those things which is going to open the eyes of all our physicists and scientists and theoretical men on the question of the molecular character of all magnetic and electric operations. This continual exchange of energy through electrical connections, through diaphragms and steel circuits, performed by this beautiful instrument of Mr. Poulsen's, was marvelous."

PROF. SILVANUS THOMPSON says

"I also bear testimony to that extraordinary perfection of regulation of the recording and speaking phonograph and telephone of Mr. Poulsen's, which I had the opportunity of seeing in Paris."

"I entirely concur with the opinions of the experts quoted in this pamphlet, and quite believe that the Poulsen Telegraphone is a wonderful and useful invention." — G. MARCONI says

"The Telegraphone is an absolutely new invention and very valuable as a commercial proposition." — Mr. OSCAR T. CROSBY, E. E, says

"Perhaps the invention of the greatest scientific interest is the Poulsen Telegraphone, by which a telephone conversation can be permanently recorded on a steel wire and reproduced at any time." — Mr. M. J GAVEY, M. INST. C. E., M. I. E. E, Electrician to the General Post Office Department of London, says

"When I was in the Paris Exposition I got the Poulsen Telegraphone set to work under all the conditions one could possibly ask for and it was marvelously pretty and marvelously wonderful. It gave a distinct record of speech not to be compared with any heretofore. I believe there are large possibilities, indeed, in the future, from this instrument." — Mr DANE SINCLAIR, M. I. E E., Chief Engineer of the National Telephone Company of London, says

"In regard to Poulsen's Telegraphone, one could hardly admire and wonder what next." — Mr. A. W. HEAVISIDE, M. I. E. E., says

"Mr. Poulsen's invention—the Telegraphone—is hardly less bold than Professor Bell's. As a scientific instrument we are bound to give it first place, and to regard it as a great application of a very clever idea." — Mr. T. E. KINGSBURY, M. I. E. E., says

"I take pleasure in joining Sir Wm. Preece, Prof. Silvanus Thompson and other scientific men in the commendation of the Telegraphone. Mr. Poulsen has made a beautiful invention of scientific as well as practical value." — Mr. NIKOLA TESLA says

Mr WILLIAM J. HAMMER says

The following is an extract from Wm. J. Hammer's paper presented at the one hundred and fifty-first general meeting of the American Institute of Electrical Engineers, and published as a separate report by the Smithsonian Institutionn at Washington:

"The Telegraphone is the invention of a Danish electrical engineer, Mr. Valdemar Poulsen, of Copenhagen, Denmark. This beautiful and ingenious instrument was considered by all those who have had the opportunity of seeing and testing it at the recent Paris Exposition to be the *most interesting and scientific novelty there exhibited.* This instrument records and reproduces the most delicate sounds, even breathing and very low whispering, and certain words which those who have had experience in working with the phonograph know have always been very difficult to record and reproduce perfectly. All these have been taken care of most perfectly by the Telegraphone. It is *self-evident that any invention possessing such intrinsic merit* is sooner or later to meet with important commercial applications."

PROF WM. A. ANTHONY says

"After seeing the Telegraphone in operation in your office on Saturday, I am free to say that the results obtained from it are fully as surprising as those obtained from the telephone itself in '76. I cannot do better than subscribe to the expressions of opinions as to its scientific and practical value which you already have from Sir William Preece, Lord Kelvin, Dr. Louis Duncan and others."

Mr. WM. STANLEY, of the Stanley Instrument Company, 145 Broadway, New York City, says

"Referring to the subject of the Telegraphone, which I have lately investigated, would say that the beauty of the invention appeals to me more than any I have looked into for a long time. So far as the operativeness of the device is concerned, I can assure that the conditions necessary for proper operation are so simple and so inherent in the

apparatus that it is next to impossible for it to get out of order or fail to do its duty. In my opinion, this invention is to be classed among such discoveries as led to the development of the telephone and phonograph, and *am of the opinion that the Telegraphone will prove of great commercial value in the future.* Of course it will take a little time to adapt the instrument to commercial requirements and to educate the people up to the fact that a mechanical device can faithfully perform the duties that we are accustomed to have performed for us by people, but *there is no doubt in my mind that ultimately the machine will come into extensive use and prove of great importance in the arts.*"

Lieutenant-General NELSON A. MILES says

"I have witnessed the operation of the Telegraphone with great interest, and its observation has proved very instructive. The instrument, as you have it, has certainly passed the experimental stage and is now in a condition to fill a field which has been hitherto impossible to cover with the telegraph or telephone, and it seems to me must prove not only most interesting and beneficial, but of great utility."

THE WORLD

Publication Office,
Pulitzer Building, Park Row,

New York, May 19, 1905.

American Telegraphone Co.,
40 Wall Street, City.

Gentlemen:

We had rather an interesting experience with the Telegraphone during its brief stay in our Advertising Department. Just as the machine was ready to run, an Advertiser called up to order an insertion. His message was written out in the usual way, but it was also taken by the machine, although not tested by it. It happened that the Advertiser imagined that we had made a mistake, and he came down to the office very indignant to prove it. The manager of the Department had a happy thought and hitched him up to the machine; the result was startling, and justified The World.

Very truly,

Don C. Seitz, Business Manager.

FRANCIS H. RICHARDS
Engineering and Patent Offices
9 to 15 Murray Street

New York, May 25, 1905.

American Telegraphone Co.,
40 Wall St., New York City.

Gentlemen:

The Telgraphone impresses me as the most remarkable achievement thus far obtained in the field of electro-magnetism, and as being the first invention to promise an effective and practically satisfactory substitute for the stenographer. Its possibilities and advantages in connection with the telegraph and telephone are undoubtedly of the highest commercial importance.

Yours very truly,

Francis H. Richards.

Alex. C. Humphreys, M.E., Sc.D., LL.D.
President.

Stevens Institute of Technology.

Hoboken, N. J., May 23, 1905.

American Telegraphone Co.,
40 Wall St., New York City.

Gentlemen:

I have been much interested in observing the workings of the Telegraphone which was installed for a few days in my office. I was surprised at the complete and distinct reproductions of interviews held over the ordinary telephone with which it was connected.

My observations lead me to think that this invention opens up most important possibilities in connection with the telegraph, the telephone and the details of office correspondence.

Yours truly,

Alex. C. Humphreys.

John A. Chrystie,
The Broad Exchange Building,
Broad St. and Exchange Place.

New York, May 19, 1905.

American Telegraphone Co.,
40 Wall St.

Gentlemen:

For the past few months I have had the Telegraphone in constant, practical use, recording all telephonic communications, both local and long distance, and have found every record absolutely perfect; as a matter of fact, some portions of conversations indistinctly borne to me over the telephone were made absolutely clear and distinct in the record on the Telegraphone.

I have also used the Telegraphone for dictating my correspondence so satisfactorily that I would not now be willing to do without it.

Yours very truly,

Dictated to Telegraphone.

J. A. Chrystie.

Conclusion of Patent Expert's Report

"OUR CONCLUSIONS based upon an exhaustive study of the art to which the Poulsen inventions relate, and the allied arts, extending over a period of a number of weeks, are as follows:

"(a) The Poulsen inventions are pioneer. The claims of the Patent No. **661,619** are valid, are not limited by the prior art, and are entitled to a broad interpretation and to a liberal application of the doctrine of equivalents; in other words, in our judgment they cover broadly the use not only of the apparatus shown and disclosed in the patent and those now used by the Poulsen interests, but, furthermore, any magnetic method of the use of any apparatus for magnetically impressing or recording, or recording and reproducing any vibrations due to sound."

"(b) The Poulsen pending application, Serial No. **11,286**, carved out of the patent aforesaid, occupies in our judgment substantially the same status, the claims now allowed or which should by proper amendment be eventually obtained are not limited by the prior art and should also be entitled to a broad interpretation and a liberal application of the doctrine of equivalents, and are susceptible of covering any mechanism or apparatus for magnetically impressing or recording, or recording and reproducing any vibration due to sound."

(Signed) WIEDERSHEIM & FAIRBANKS,
Philadelphia, Pa.

May 17th, 1905.

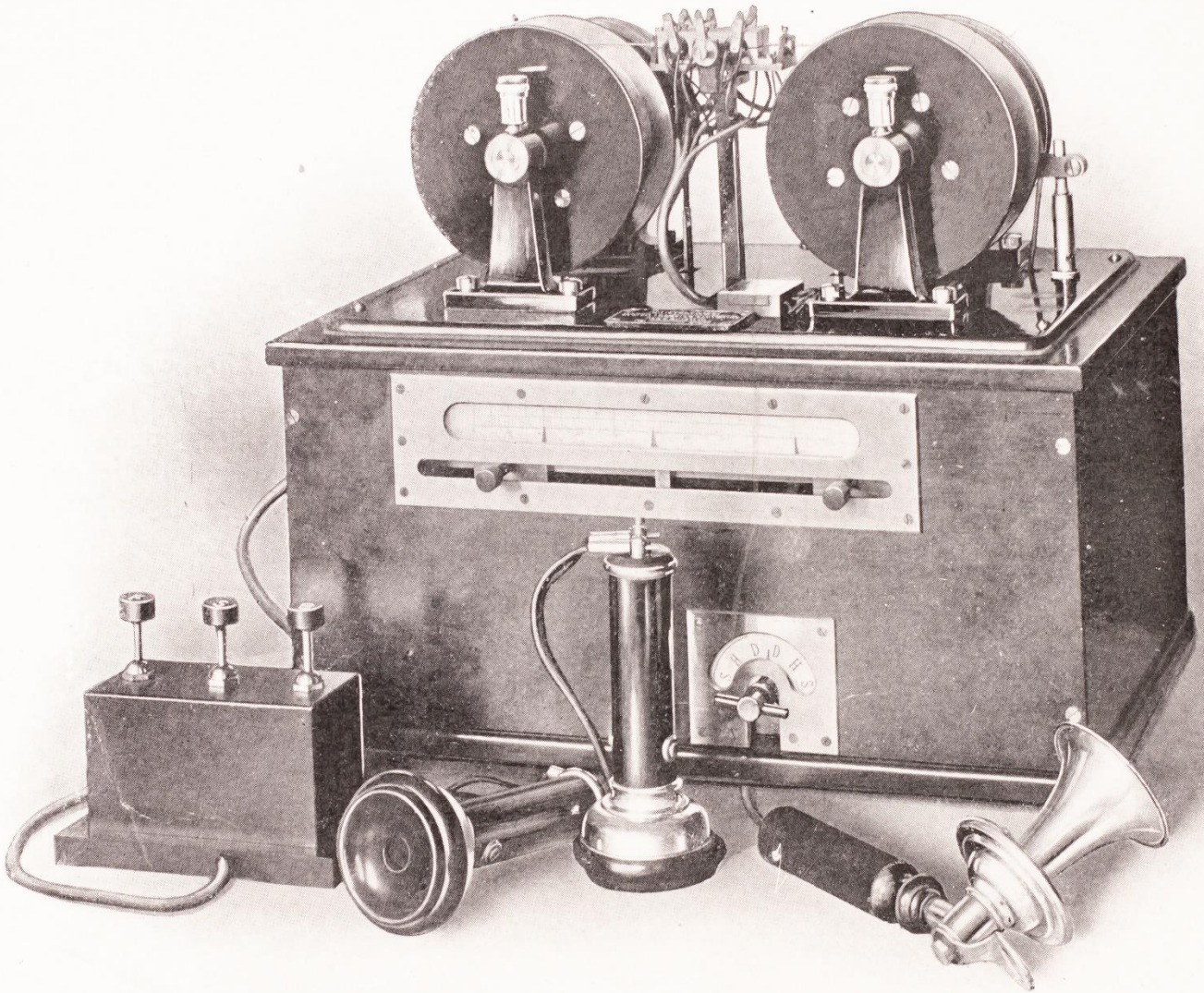
AMERICAN TELEGRAPHONE CO.,
40 Wall Street.

Gentlemen:—In response to your request for a general statement of the patent situation, we beg to submit the following:

Valdemar Poulsen, of Copenhagen, Denmark, was the first person to invent and produce a machine capable of recording and reproducing telephonic speech. The principle discovered and utilized by Mr. Poulsen is protected in the United States by fundamental patents, one of which covers the invention by means of "method" claims and the other by means of "apparatus" claims. These two patents afford a complete monopoly of this valuable and highly scientific invention.

In addition to these fundamental patents there are a large number of other patents issued, or about to be issued, from the Patent Office, covering machines and apparatus adapted for use in connection with the Telegraphone itself, or modifications of the original machine, adapting it for special purposes, such as commercial dictation, entertainment, news distribution and the amplification of the reproduced sounds. These patents are also more or less fundamental in their nature and, taken with the original patents, afford ample protection for all branches of the business to which the Telegraphone is adapted or may be applied.

Respectfully,
ROSENBAUM & STOCKBRIDGE,
New York.



TELEGRAPHONE OF THE WIRE TYPE, FOR ORDINARY OFFICE USE ON THE DESK OR IN CONNECTION WITH THE TELEPHONE.

Uses of the Poulsen Telegraphone

Telephone Recording Machine

RECORDS of telephone conversations or contracts made over commercial lines of any length can be had by simply pressing a button, the operation in no way interfering with the use of the telephone. Further records may be automatically made of any telephonic message during the absence of the subscriber from the office. All Telegraphone records can be reproduced any number of times and are permanent. They can be erased at the will of the subscriber. Therefore it is valuable in the offices of Newspapers, Bankers, Brokers, Manufacturers, Merchants, Contractors, Attorneys, etc.

Recording Dictation

The machine at present is perfected for this purpose. One can dictate to this machine and then the typewriter without any difficulty is enabled to hear and type the dictation. The features of this machine are that: The dictator and typewriter can be isolated telephonic distances from the machine. The record material can be used over and over again and one can dictate continuously for half an hour or more, according to the size of the machine.

Public Telegraphoning between Distant Cities

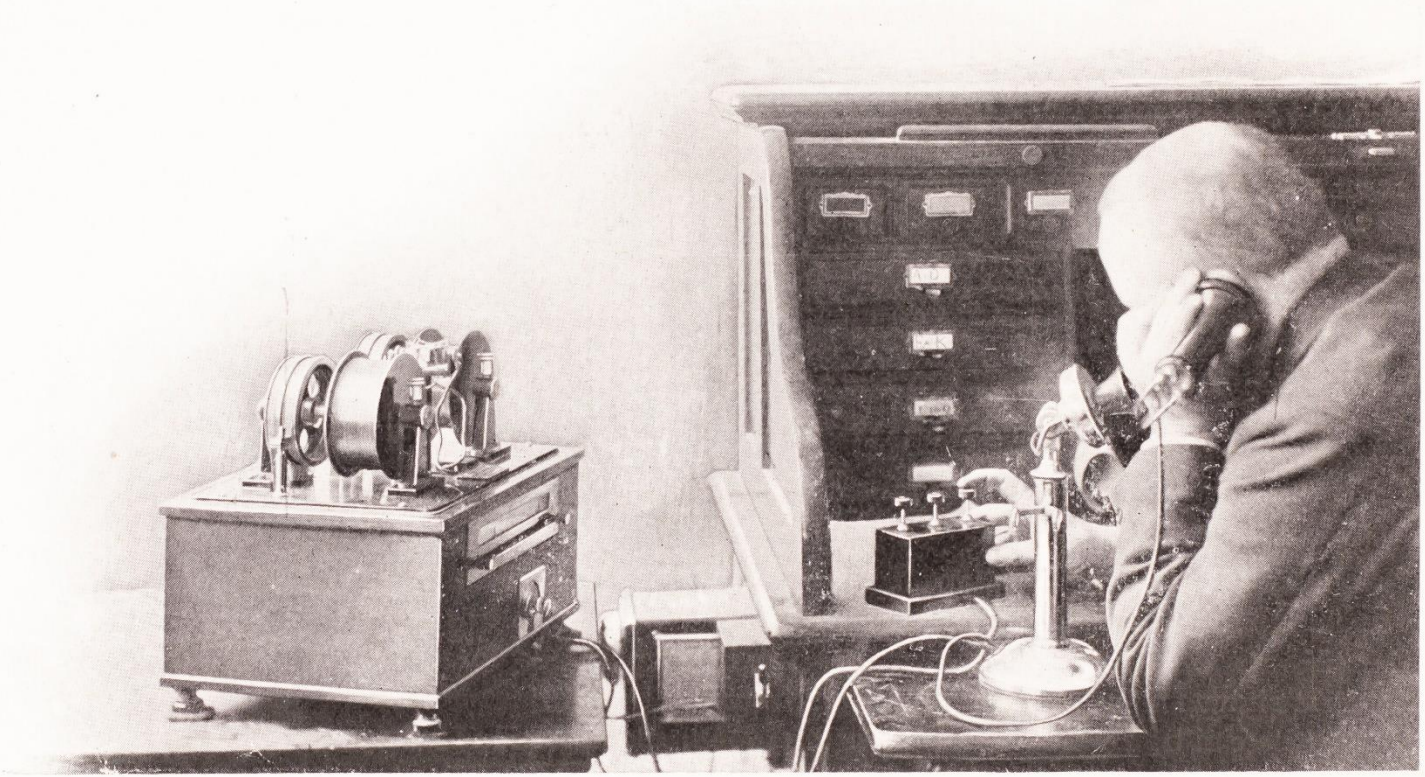
Messages can be accumulated on the Telegraphone, then transmitted over long distances at small costs at a high rate of speed, vastly increasing the capacity of trunk lines between cities. This opens up an entirely new method of transmitting messages promptly at fixed intervals, and at small cost compared with present methods.

Marine Records

On war ships as well as on all other vessels it will keep an absolute record of all bell and whistle signals as well as verbal orders from the bridge.

Stock Quotations, Loud Announcements

This principle can be applied to the furnishing of stock quotations to any number of subscribers in such a manner as to announce through a megaphone, in their offices, the quotations as they occur on the exchange, permitting the tape quotations to follow later.



TELEGRAPHONE RECORDING TELEPHONE CONVERSATION.

News Distribution

This principle can be applied to the distribution of news, such as is furnished by Press Associations, to any number of subscribers. A record is made at each of the newspaper offices and the machine arranged to enable the editor to eliminate such words as he desires, permitting the balance of record to go to the linotype operator, after which the proof-reader can compare proof with original Telegraphone record.

Telephonic Train Despatching

Application of the principle to this service permits the order of the despatcher, as spoken by him into telephone, to be recorded at necessary stations along the road.

General Amusements
Public Speech Recording

Since wire diameter is $\frac{1}{100}$ of an inch, records of an hour or more can be made. Thus the entire score of an opera, a monologue or speech can be had as against the two to four minute records of the present talking machines.

Wireless Telegraph Recording

Wireless signals of the several wireless systems, such as the Marconi, being received in the telephone receiver, can be recorded.

Rapid Telegraphing

The recording of the signals peculiar to the rapid telegraph systems, such as the Delaney, is possible. The Telegraphone has recorded dot and dash as transmitted by the Yetman machine at high speed.

Automatic Coin Amusements

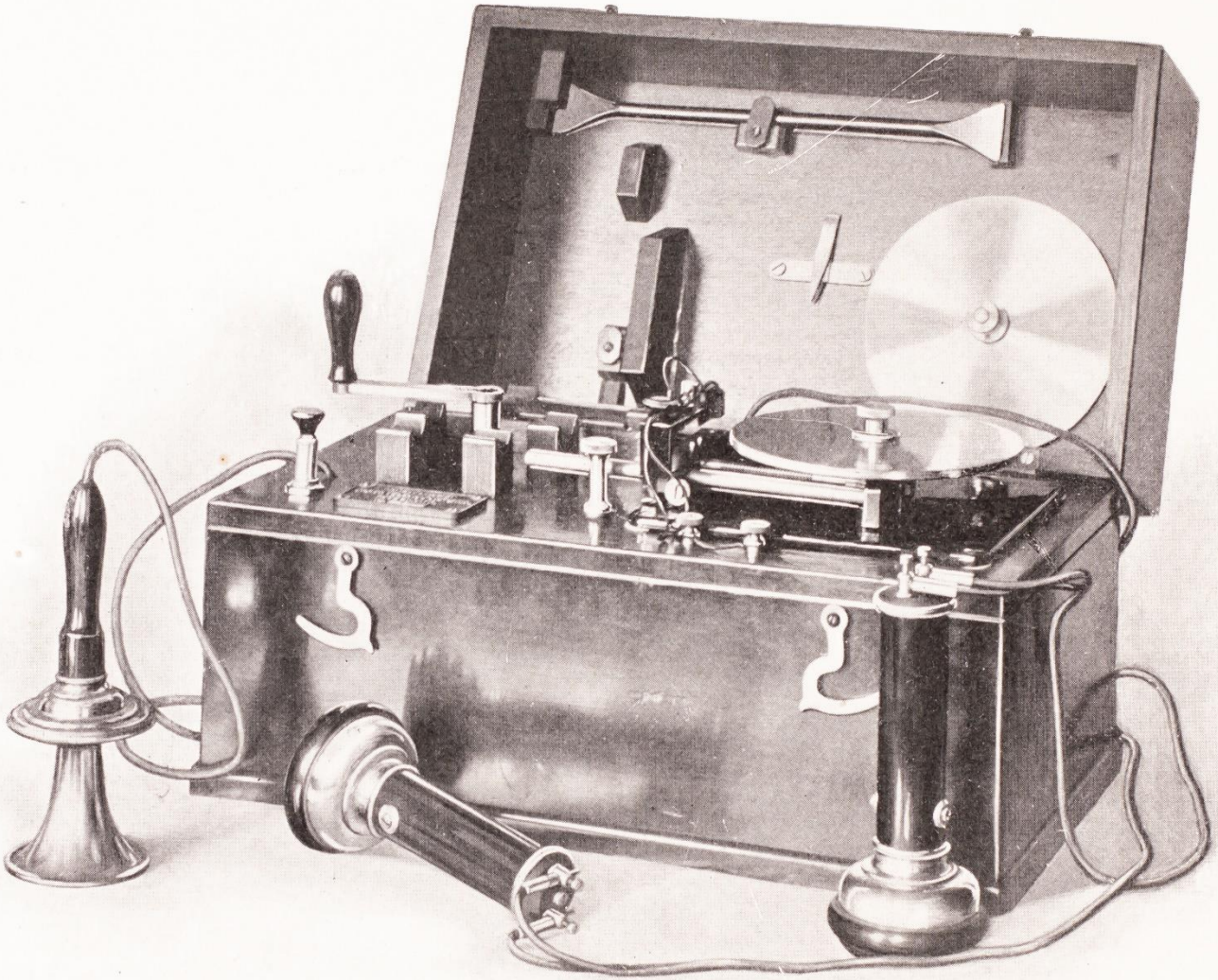
As novelty is what the automatic coin establishments desire, the principle can be applied to the making of the machine, into which one can dictate and then hear his own voice. Such a machine is not on the market to-day. It can also be used in place of the amusement phonograph.

Language Teaching

Phonographs are used largely to-day for this purpose. Understand that Italian is impossible to teach by this method, as the soft C and other sounds peculiar to this and other languages are impossible to record. Conceded by Rosenthal that the Telegraphone is eminently satisfactory for this purpose.

Office Building and Hotel Typewriters Exchange

In large office buildings, every office, or in hotels, every room, can be—the telephone circuit being used—connected to a central typewriting establishment in which



DISC STYLE OF TELEGRAPHONE, FOR HOME AND OFFICE USE.
MAGNET SHOWN ON TOP OF BOX, FOR INSTANTANEOUSLY WIPING RECORD OFF THE DISC.

the Telegraphones are in use. Thus the guests of the hotel or the business man can be instantly placed in circuit with the machine and have his typewritten letters handed to him for signature in a most expeditious manner.

Uses of the Disc Machine.

Letter Machines

Thin steel discs, capable of three minutes or more dictation, can be recorded upon and sent through the mails (postal charge, two cents) to correspondent. The subject matter can be instantly obliterated and the disc used again and again. Thus correspondence can be maintained between parties having Telegraphones in different parts of the country, avoiding letter writing, saving time, labor and the cost of paper, etc. It also enables persons to communicate with one another who are unable to otherwise correspond for any reason or defect.

Hotel Disc Service

A small machine on the door of each room where messages could be recorded in the absence of the guest.

Secret Service Machine

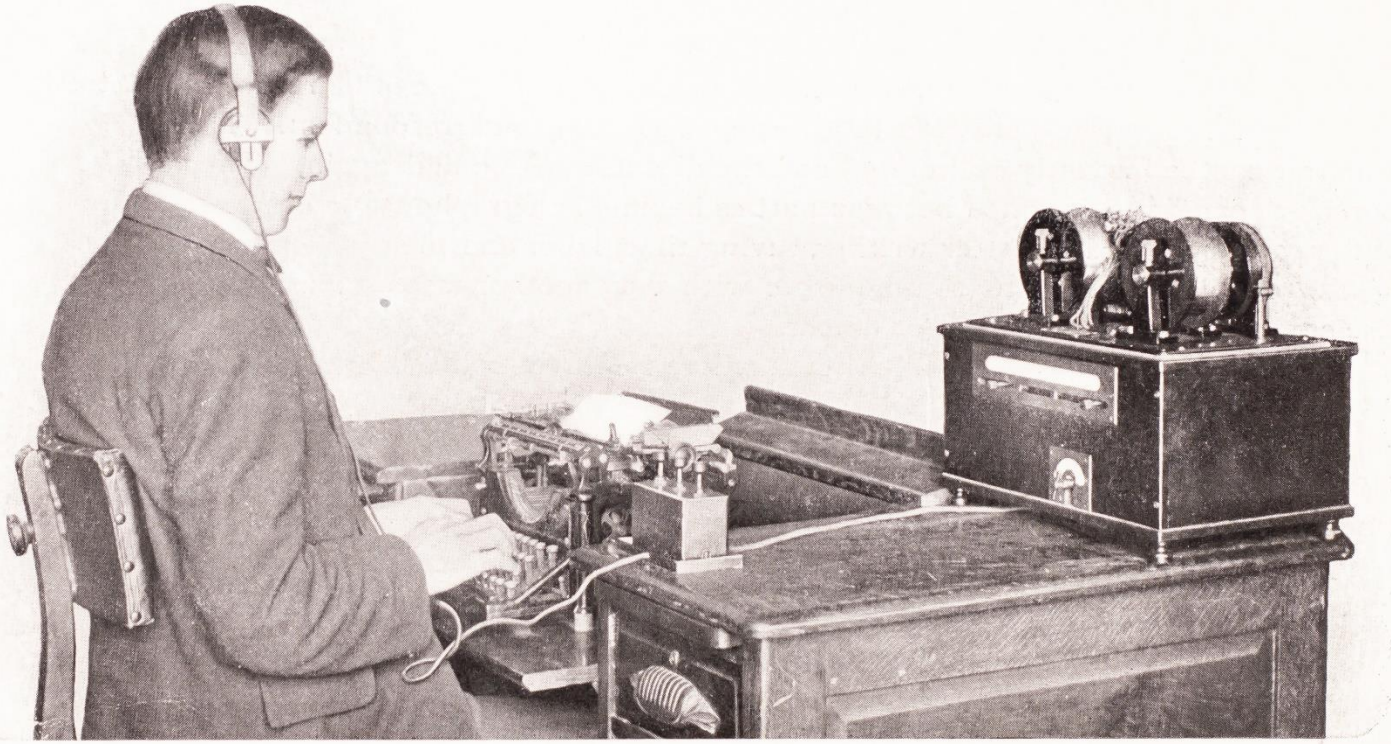
Two machines designed to make the magnet travel over the disc in an erratic path peculiar to these two machines and no other would answer the purpose of secret service communication, as no other machine could possibly keep the magnet in the right path of the record. Records of criminals' voices can be made and filed for future reference.

Books and Music for the Blind, Aged and Infirm

The blind, aged and infirm can be entertained by the records of novels, books, music, etc., reprodced by the Telegraphone.

Domestic Records

Records of the first voice, efforts of the child and later ones, can be made and preserved for future generations, and children who cannot write can correspond with other children or with their elders.



First Perfect Amanuensis

Continuous Dictation

THIS is one of the first needs which the Telegraphone is called upon to fill, and which it is able to fill to the utmost satisfaction.

The typewriter may be located in a place remote from the person dictating correspondence, the dictation going over a telephone wire from the latter's desk to the Telegraphone, which may be located in another room, in another part of the building, or in quite a different building.

The use of a disc machine for this purpose enables the filing away of the inexpensive discs for permanent and perfect record copies of communications, though the disc may be instantly cleaned by passing a magnet over it.

Ordinarily the wire machine will be used for office dictation, because it will accommodate a greater volume of dictation.

Always Ready for Use

The business man sits at his desk. As occasion comes up through the day to dictate a letter, he dictates it to the quiet machine at his side. This is repeated indefinitely. At stated intervals his typewriter, connected with the Telegraphone by wire, transcribes the letters, having a perfect record to write from.

The ease with which the record may be erased, whether it be wire or disc machine, removes the chief objection to the wax-record machine. Its perfect recording of the most delicate sounds and the most difficult words renders it not only more infallible than the wax-record machine, but much more so than the stenographer.

Machines Talk to One Another

It requires some imagination to think of two Telegraphones talking to each other. And not a little reflection as to the practical side of such a phenomenon.

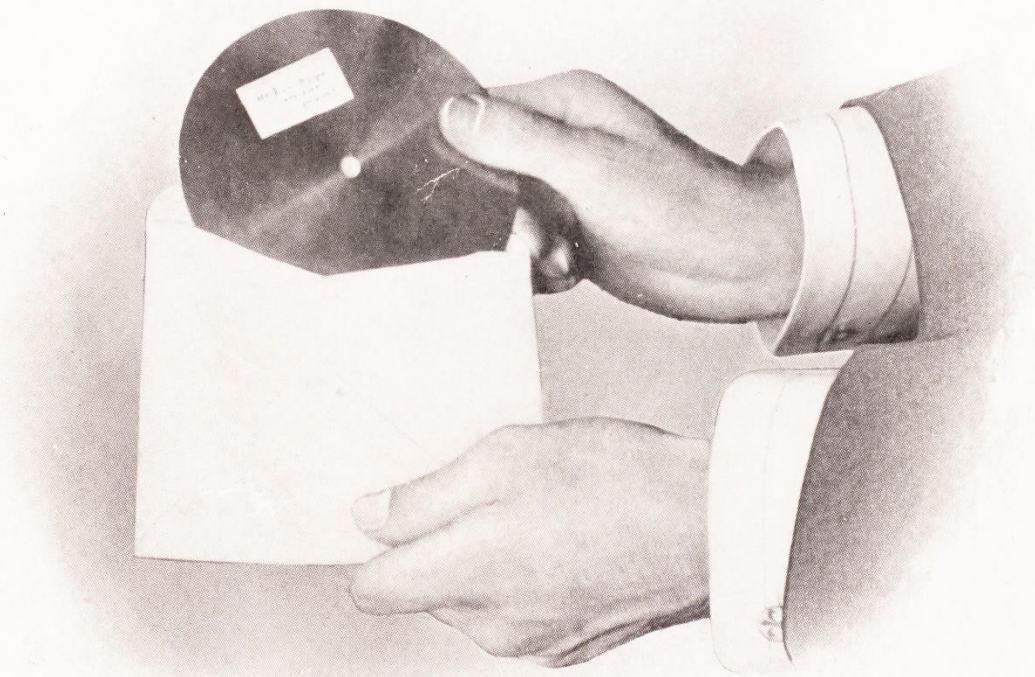
To be exact, one talks while the other listens and records.

This is only one of the many intensely practical uses.

Not Miracles but Every-Day Uses

It will be remembered how like a miracle it seemed when it was found that the voice would travel over a string or an ordinary wire—and how devoid of such appearance is now the daily and hourly telephone message.

Many of the things now done for the first time by the Telegraphone seem equally miraculous, and yet the uses it presents are of such hourly need that in a brief period they too will seem only to-be-expected accomplishments of every-day science.



When it is stated that a spoken message, with no writing, indentation, or unevenness of the surface on which it is borne, may be sent through the mails in an ordinary envelope for a two-cent stamp, without fear of injury or effacement, it will be seen how far beyond the phonograph the Telegraphone goes.

And this is but the simplest of its uses.

It is a matter of but a short time when a large portion of business and private communications through the mails will be sent on the thin, light, convenient and inexpensive steel plates, or discs, of the Telegraphone, which may be used over and over again for the same purpose without any mechanical or laborious process of erasing the original record. A record once used is rendered blank again by simply passing a magnet over it.