

AUG 12 1899

**THE**  
**PHONOSCOPE**  
*A Monthly Journal Devoted to*  
**SCIENTIFIC AND AMUSEMENT INVENTIONS**  
 APPERTAINING TO  
**SOVND & SIGHT.**

ENTERED AS SECOND-CLASS MATTER AT THE NEW YORK, N. Y., POST-OFFICE.

Vol. III

No. 5

New York, May, 1899

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**Principal Features of this Number**

\* \* \*

THE SECRET OF MAKING PHONOGRAPH RECORDS

BIOGRAPH VIEWS OF WRECKED VESSELS

FOREIGN BUYERS FOR AMERICAN NOVELTIES

TRADE NOTES

NEW CORPORATIONS

OUR TATTLER

THE FILMS THAT FAILED

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THE TELEDIAGRAPH

X-RAY ITEMS

PHOTOGRAPHS MADE BY X-RAYS FROM THE HUMAN  
HAND

NEW RECORDS FOR TALKING MACHINES    New Records  
Manufactured by the Leading Companies

THE LATEST POPULAR SONGS. List of the Latest Metro-  
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NEW FILMS FOR PROJECTING DEVICES

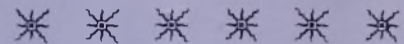


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 NEW TALKING MACHINE  
**THE POLYPHONE**



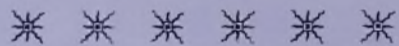
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# The Phonoscope

(Copyrighted, 1896)

A Monthly Journal Devoted to Scientific and Amusement Inventions Appertaining to Sound and Sight

Vol. III.

NEW YORK, MAY, 1899

No. 5

## The Secret of Making Phonograph Records

The secret of Making Phonograph records is summed up briefly as follows:—experience and knowledge of the Art. The two go together. One is useless without the other. What I know about it has been the result of a great deal of experimenting (such as you must do), combined with many useful hints and pointers and suggestions gathered from practical Phonograph men (which I propose to tell you). You will then know all that I know, which, after all, isn't so much. What I don't know about it would fill books; a negative way of expressing my modesty, perhaps; but, as in photography, the negative prints the positive, so will my negative assertion serve to bring out more clearly the details of that greatest of Phonographic problems—the making of a perfect record.

Let's talk about the recorder to begin with, for that is the heart of the whole matter. Your recorder must be perfectly adjusted and adapted for the particular kind of record you are taking. This is largely a matter of judgment and experience. Certain musical instruments and certain qualities of voice, will record with a squeak or a blast when a glass diaphragm of a certain thinness is used, and yet will record perfectly if a thicker or thinner diaphragm is substituted. Recorders are usually equipped with a No. 7 to a No. 8 diaphragm; that is to say the glass is from 7-1,000 to 8-1,000 of an inch thick. The rubber washers between which the diaphragm rests, may have become hardened. Rubber does, you know, get either hard or sticky in time. This interferes with the free vibration of the diaphragm, and consequently affects the clearness of the record, and new washers should be substituted. In changing washers or diaphragms, the metal clamp ring should not be screwed in too tight, nor yet left too loose. If too tight, the diaphragm ceases to be sensitive. If too loose, the record will whistle or blast. There is a happy medium which you must discover for yourself. See also that the tiny metal arm is cemented firmly to the centre of the glass, if not, you will get a dull, rasping quality of sound that is very unnatural. The sapphire recording point must have a sharp even surface, that it may readily engrave the wax of the cylinder. Great care should be taken in handling or laying down the recorder, that the sapphire stylus does not come into contact with a hard surface of any kind. A chipped stylus is a frequent cause of poor records. I mention these points in detail as it is of the greatest importance that you become familiar with them. You've got to know the tools you work with, and especially the glass diaphragm, which is the most delicate and sensitive part.

Now, as to the various diaphragms to use. In making vocal records, it depends entirely on the strength of voice of the singer, varying all the

way from an 8 down to a 6 glass. The thinner the diaphragm, the more sensitive it is. Take, for instance, a singer with a good loud voice. Use an 8 glass. Should the record not come out strong, and if it has no blasty defects, try a 7½, then a 7, or even a 6½. The moment the record blasts, your diaphragm is too thin, and over-sensitive for the voice. "If at first you don't succeed, try, try again!" It is a very apt motto to adopt in record making.

For a cornet, use an 8 or a 7 glass. Use an 8 or a 7½ for a band record or an orchestra record. For a clarinet, try a 7 or a 6. For a piccolo a 6. For a banjo or xylophone record a 6 or a 5. For a violin a 6½ down to a 5. For talking records, use a 7 glass.

Upon the shape of your horn, also depends in a great measure, your success as a record maker. The horn should be pointed on the level with the head of the performer. In other words, the Phonograph itself should be about on a level with the head. The best results for talking records are obtained by using the molair speaking tube. If the peculiar quality of a speaker's voice should make the record sound muffled, try the bell-shaped fourteen-inch brass horn with which most Phonographs are equipped; or the twenty-six-inch japanned tin horn may also be used with good effect. It all depends on the quality and loudness of the speaker's voice. The twenty-six-inch japanned tin horn is also a good shape to use for banjo, violin, xylophone, cornet, band and orchestra records; although a regular special recording horn would be better. These special horns are made of block tin, long and narrow in shape, being from twenty to twenty-six inches long and not more than six inches across the end, perfectly conical in shape, with no flare or bell on the end. They are the very best shape for all vocal records, and also for the piccolo or clarinet. While good records may be made with the regular shape twenty-six inch japanned tin horn, it is best not to take any chances. In making records, strict attention must be paid to the smallest details. The veriest trifle will sometimes spoil the best attempt.

Next, the wax cylinder should be perfectly smooth and true. Much depends on the absolute smoothness of the wax blanks. If you do your own shaving, run the machine at the highest possible rate of speed; and do not cut too deep. If you do, it causes the wax to chip, leaving a broken, crackled surface, on which a good record cannot be made. Shave several times in preference to one deep cut. The Edison blanks you can buy already shaved are superior to any possible work you can turn out yourself, as they are shaved by a special machine running at a very high rate of speed and are absolutely accurate. Be very careful in handling the shaved blank, that no finger marks are left on its surface. Should there be any residue of the shaving operation left on it, take the cotton in which the blank is wrapped, and tear open one end,

picking out the frayed edge to make a soft brush, and brush the blank gently, with a downward motion. Don't breathe or blow on the surface to remove the wax dust. Better still for this purpose is a soft wide camel's hair brush.

Lastly, see that your Phonograph itself is in perfect running order, well oiled and free from dust. This is an essential to perfect work with any piece of machinery, and the Phonograph is no exception in this respect. Any undue friction will make a grind or a rumble, and will seriously mar your attempt by making itself heard in the record you are making. If the machine makes discordant records, or false tones, it may be that the belt is loose, thus causing the main shaft to slip. If your Phonograph is an electric machine, the governor contact may be dirty. Care should be taken if you use a machine of the spring motor type, that the mechanism is always fully wound. A record made while the machine is running down will reproduce with a varying pitch, thus destroying all harmony. The proper speed for recording is about 120 revolutions per minute. This is easily ascertained by watching the screw on the pulley, and counting and timing the turns.

As to the room in which you take your records, it might be well to have no curtains or other soft hangings. In a perfectly bare room, with no carpets or furniture or draperies, a record will have a certain ring to it, a peculiar resonant quality of sound that some people prefer. One objection to stripping a room is that there is a great likelihood of your records blasting. On the other hand, a "seasoned" room with just enough hangings to break up any echoes, makes a richer, more mellow tone quality. This is largely a matter of individual taste and judgment, and can only be determined by experimenting and watching results very carefully. All these are points that may seem to be unimportant, but if you are after success, you cannot afford to omit the smallest detail that might help you to secure the most satisfactory results.

And now for the record. If a vocal solo is to be recorded, the singer should stand immediately in front of the recording horn, not more than three or four inches from the opening, and should sing directly into it. The articulation should be very distinct. Avoid singing with too much expression. That voice will record best that has an even quality throughout the entire register. Some voices are full and rich and mellow in the lower notes, and thin or weak in the upper register. In all cases, choose the songs that are best suited for the singer's range of voice. When a high note is sung, the singer should draw back the head, away from the horn, so as to equalize the vibrations. Either do this, or repress the voice so that the tones are covered. Should the singer make a very strong and loud record, with a blasty imperfection in only one or two spots, keep the same diaphragm, and try to remedy by drawing away from the horn at the high notes that blast; in other words, correct the blasting, if possible,



by covering the objectionable tones, rather than by substituting a thicker diaphragm, which might make the whole record weak. In general, the tones that cause the defect of blasting are open tones, the long "i" sound, the "o" as in "love," the word "heart." These tones occurring on high notes, almost invariably cause trouble, even with experts in the art. Scientists estimate that there are over a thousand sound waves per second in the high C of a tenor. To record high notes accurately and naturally is very difficult, on account of the exceeding rapidity of the vibrations. A soprano high C being an octave higher is still more difficult to record. In fact, women's voices are the least satisfactory records for an amateur to attempt, on account of the great amplitude as well as the rapidity of the vibrations.

In making talking records, speak naturally, but with energy. Do not force the voice too much. Articulate plainly, sounding the s's and c's with particular distinctness. In using the speaking tube, the lips should just about touch the mouth piece. With the fourteen-inch horn, or the twenty-six-inch japanned tin horn, the speaker should be from two to four inches away. Experiments will prove the proper position for each speaker. In making tests, announce upon the record each change you try, so that the effect of each experiment may be traced when the record is reproduced.

If a piano is used, (and all musical records are vastly improved by a piano accompaniment), it should be an upright, with the back of the instrument as close to the horn as the position of the performer will permit. This again is a matter of judgment, as some pianos are so much louder than others that they may be placed farther away, up to three or four feet. With a square or a grand piano, it is difficult to get real good results unless the cover of the instrument is raised at an angle (so as to act as a sounding board), and the horn placed very close. For vocal duets and quartettes, the singers should stand with their heads as close together as possible, directly in front of the horn. Good records of choruses are not easily made, as the greater the number of singers, the more complicated do the sound waves become. In fact, a single voice or a single instrument will produce every time the loudest record. The cornet is the best instrument for the amateur to commence with; it should be placed from four to six feet away. Watch the high notes carefully, or the record will blast. The scheme of "flagging" high notes is a good one. Whenever such high notes are played, lower a silk handkerchief in front of the horn. But better still, have the player enter into intelligent co-operation with your efforts, and by repressing certain notes he can aid you very materially. The most successful Phonograph singers or performers are those who watch results as carefully as the record maker does himself, and regulate their efforts accordingly. They must realize every moment that they are making records for the Phonograph, and not singing for an audience. Evenness of tone is what tells.

A piccolo or a clarinet should be within a foot of the recording horn. A violin or banjo as close as possible. Banjo duets make especially loud and clear records. A guitar or mandolin do not give satisfactory results. A xylophone should also be as near as possible, with the upper octave closer to the horn than the lower.

In making band or orchestra records, place the bass instruments (such as tubas, altos and trombones) at a distance of five feet from the horn. These instruments all give tones having slow vibrations, and consequently must be nearer the

recording diaphragm to balance the other instruments having a greater energy of tone vibrations. Cornets should be at the greatest distance, about fifteen feet. Place the other instruments in between; piccolo, five or six feet from horn; clarinet, seven feet. Snare drum, three or four feet away. Better omit the bass drum. It is likely to spoil the effect, as it does not record well. If it is possible, have the cornets on the back row well elevated, so that the performers in front do not cut off or block the sound. In fact, it is well to elevate even the piano about two and one-half to three feet from the floor, so that it may be on a level with the recording horn, which, as before stated, points level with a singer's head. For record making at home, where it would not be an easy matter to do this, the performers should sit rather than stand, so that the piano accompaniment records with a true relative value to whatever it accompanies.

As previously stated, *experience* in the art of record making is the best teacher. The above instructions merely outline the principal points to be observed. Follow them carefully, and give particular attention to the minutest details, as very frequently the smallest trifle will spoil what would be otherwise a highly satisfactory record.

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## Biograph Views of Wrecked Vessels

No sooner had the news reached London of the wrecking of the American Line steamship Paris on the Manacle Rocks than Mr. W. K. L. Dickson, the expert photographer of the British Mutoscope Company, started out with his associates and apparatus for the Cornish shore. The results of his work are exceedingly interesting, and give a very adequate idea of the coast so greatly dreaded by the shipping of all nations. The view of the Paris, was taken somewhat later than any that have been previously reproduced in this country, and was practically the last effort made to move the vessel. It shows the great wrecking tugs straining at the hawsers and the smoke pouring from the funnels of the steamship as its propellers reversed in the final effort to work the great hull off the sharp rocks which pierced it. In looking at the Paris as she lies in comparatively quiet sea and no sign of the rocks anywhere about her, it seems almost incredible that the magnificent boat had to be abandoned as a total wreck. To all appearances she is lying as safe and secure as she might be at her anchorage in New York harbor.

The biograph picture is exceedingly realistic, and has attracted a great deal of attention. It is a panoramic view made by swinging the camera in the arc of a circle.

The other pictures are hardly less interesting, having been made on the same day as the wreck of the Mohican. All that is left of that ill-fated craft consists of a portion of the three masts and the rigging. The picture shows a wrecking boat and the identical lifeboat crew that worked so heroically in removing the passengers from the Mohican at the time of the storm. The views show the launching of the life-boat and the approach to the wreck, where two or three stranded mariners are seen hanging in the shrouds.

The American Mutoscope and Biograph Co., has recently received word that several exceedingly interesting pictures taken by their foreign connections will be shown in this country at an early date. Among them are two views, one

showing Emperor William at the head of his favorite Guard regiment, and another of the Empress of Germany and her suite in grand military uniform on horseback at a military fete in Berlin. Both of these will be of interest to Germans in this country. At the great English Derby the biograph bagged the Prince of Wales, photographing the winning horse and the finish of the race, and in Paris the finish of the Grand Prix, at which the much-talked-of attack on President Loubet by the aristocracy was made, was also secured. The Netherlands Company report that they have made arrangements to secure the dignitaries of the World's Peace Commission.

## E. T. Paull Music Co.

We wish to call the attention of our readers to the special half page "ad" in this issue of the E. T. Paull Music Company, who have fitted out and equipped one of the best Phonograph plants for making original master records to be found anywhere in the trade. A cut of the building which this company occupy will be found in their advertisement. The E. T. Paull Music Company are one of the largest and most successful music publishing firms in New York City, and as such are known all over the United States by the music dealers. Mr. E. T. Paull, the head of the concern, has the reputation of writing the most popular marches of the present day. He has won pronounced fame on his "Ben Hur Chariot Race March," "Charge of the Light Brigade March," "America Forever March," and other marches, the sales of which run largely in the hundreds of thousands. It is the purpose of the E. T. Paull Music Company to make only original master records. They claim with the improved appliances at their command, and the "up-to-date" plant they have established, to be able to sell a better record at a lower price than any one else; their facilities are of such a character as to enable them to do this. They have been particularly fortunate in securing such men as Charles Clinton Clark, who has no peer in the matter of singing coon songs which at present are having a universally large sale. Mr. Clark will sing for this company exclusively, and it is safe to say that his records will become the most popular on the market. Mr. A. J. Loisselle is also connected with this company. Mr. Loisselle was employed for several years in the largest factories, operating machines for the manufacture of records, and he is probably one of the best men in the business. He will have charge of the machines used by this company, and being an expert in this line, the very best possible results may be expected. Mr. Charles Jerome Wilson is also connected with this company. Mr. Wilson is what may be termed an old time Phonograph man. He had charge of the laboratory of the North American Phonograph Company for the manufacture of records. With such men as these, it is only natural that the E. T. Paull Music Company will place on the market records that will have no superior. It will pay any one interested in records in any way to glance over their advertisement in this issue found on page 8, and it will be well, as a matter of curiosity, if for no other reason, to send for a sample order, which they agree to supply at a special low price, simply to show the character of their goods. It will be a favor to the publishers of this paper if you will kindly mention having seen the "ad" in THE PHONOSCOPE.

Patti refused to sing into a Phonograph at San Francisco, but one of Edison's agents concealed a cylinder on the stage and caught the impression of her \$1,000 notes.



## American Novelties.

### The "Foreign Buyer"

Foreigners who are in the Market for 'Graphs,' 'Phones,' 'Scopes and novelties. Descriptive Circulars and Quotations, if sent to the following, may bring some customers

#### POSTAGE RATES TO FOREIGN COUNTRIES

Letters, 5 cents for each half ounce or fraction thereof. Pre-payment optional. On unpaid or short paid letters, double postage is collected on delivery.

Printed matter, newspapers, catalogues, circulars pamphlets, photographs, one cent for each two ounces or fraction thereof.

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Glombitza & Muller, W. Rankestr. 1, Berlin.  
Johannes Gruttnsr, N. Oranienburgerstr. 50, Berlin.



# THE PHONOSCOPE

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PUBLISHED MONTHLY BY

THE PHONOSCOPE PUBLISHING CO.

4 EAST 14TH STREET, NEW YORK, U. S. A.

EMIL IMANDT, EDITOR

## SUBSCRIPTION:

United States and Canada . . . . .	\$1.00 per year
Foreign Countries . . . . .	1.50 "
Single Copies . . . . .	10c. each

Back numbers can be obtained at regular rates.

ADVERTISING RATES FURNISHED ON APPLICATION

All communications must be addressed to The Phonoscope Publishing Co., 4 East 14th Street, New York City, to insure prompt attention.

THE PHONOSCOPE is the only journal in the world published in the interest of Talking Machines, Picture Projecting and Animating Devices, and Scientific and Amusement Inventions appertaining to Sound and Sight.

Correspondents in London, Paris, Berlin, Amsterdam, Madrid, Alexandria and Constantinople, Australia, South America, Central America, Canada and 108 cities in the United States.

The Publishers solicit contributions from the readers of THE PHONOSCOPE, and suggest that any notes, news or items appertaining to sound and sight would be acceptable.

It is rumored that one of the New York Phonograph companies will soon go out of business.

Mr. Chas. Mueller is manufacturing some new Phonograph and record cabinets of very elaborate design. He will be represented in our next issue.

Wilhelmi & Co., an export house in New York, claim to have placed an export order with the Columbia Phonograph Company for 45,000 blank cylinders.

Carroll Johnson, who has set St. Louis wild over Ed. Rogers' rattling melody, "The Oriental Coon," will feature this song all the season with West's Minstrels.

The Phonoscope Publishing Co., are installing an electric printing plant, the electric installation of which is being furnished by the "Electrical Department" of F. M. Prescott.

Williams and Walker, all reports to the contrary notwithstanding, will continue to write songs exclusively for Jos. W. Stern & Co. They have a number of surprises nearly ready.

The well-known Lyric Trio have just sung some fine selections for the Gramophone. Their rendering of Verdi's "Atilla" is one of the best Gramophone records we have ever heard.

The Consolidated Phonograph Company, Ltd., of Newark, have issued a new record list of their new process product. The catalogue contains a large list by many well-known artists.

One of the largest export jobbers made a \$1,500.00 shipment of Phonographs recently which are destined for a ten days' journey by camels before they reach their destination.

Mr. Cal Stewart has recently introduced some new stories among them "Uncle Josh in Society," "Uncle Josh and the Lightning Rod Agent" and "Uncle Josh in the Chinese Laundry."

Mr. Bettini has just issued his new catalogue which is very artistic and elaborate. They will be sent to any one upon request. These catalogues will be supplied in quantities at a very nominal figure.

Helene Mora, now visiting her home in England, will feature next season the new ballad, "Wait Till My Ship Comes In," by the authors of the enormous success, "The Moth and the Flame," and one of the most dramatic songs in years.

F. M. Prescott reports that his first month in glass horns has been very successful, his initial stock being sold out and a new and larger stock are now being made for immediate deliveries.

The Commander-in-Chief of the Nepalese Army, writes that he has placed an order with Edison for a Concert Phonograph. This shows how rapidly the news of the latest inventions travel.

T. E. Challenger, Treasurer of the United States Talking Machine Company of Philadelphia, has just returned from a three weeks' engagement. He reports business very good, especially in Concert Phonographs.

All the theatre orchestras and bands are now programming George Rosey's catchy, "My Lady Love Waltzes," and the European march craze, "Folies Bergore," composed by Paul Lincke and arranged by Mr. Rosey.

We are sorry to learn that Mr. John Monroe has been a little under the weather of late but has entirely recovered and is now prepared to fill all orders promptly. Attention is directed to his advertisement on page 6.

Mr. Cal Stewart was talking to some friends recently about certain song records when a gentleman from the rural district said he had listened to the songs on the Phonograph and while the singing was good the gestures were bad.

During Mr. Guth's recent visit to New York City he succeeded in securing the sole western agency of the Viviscope for the Edison American Phonograph Company of Kansas City, and intends to push the sale of these machines vigorously.

Dave Reed, Jr.'s immense new success, the jolly coon song, "My Hannah Lady," has already run through several editions. It is sung to great applause by Lottie Gilson, Irene Franklin, Nicholls Sisters, Johnnie Carroll and Frank Cushman.

The title of being the only tramp photographer in the United States is claimed by G. M. VanHorn and he deserves it. His entire photographic outfit weighs less than five pounds. Judging from some of his work it is certainly good considering the size of the camera.

Many vocalists preface Dave Marion's successful ballad, "It's Not What You Were, It's What You Are To-day," by announcing that it tells their own life story. This is the secret, too, of its triumph with all sorts of audiences—it always strikes home. The publishers have many calls for it.

The phenomenal ballad, "The Girl I Loved in Sunny Tennessee," remains the particular song hit of the day, promising to equal if not to excel

the fabulous success of "She Was Bred in Old Kentucky." It will be retained in the repertoires of many prominent artists for a year to come.

Max S. Witt's new "Robespierre Waltzes," just placed, are underlined for one of the hits of the approaching season, in view of Sir Henry Irving's coming American production of his Robespierre play. Mr. Witt has Sir Henry's personal permission for the dedication of the waltzes to himself.

It is stated that James Andem, of the Edison Phonograph Company of Ohio, claims the exclusive right of that state under his original grants from the North American Phonograph Company and intends to maintain it by law if necessary. He has removed to more commodious quarters in the Arcade Building.

I. W. Norcross, of the Norcross Phonograph Company, has had much sickness in his family during the past two months. He disposed of his house in the city and rented a cottage in Manhasset, L. I. Since then, we are pleased to state, they are all rapidly improving. Mr. Norcross is preparing for a prosperous fall trade.

The National Gramophone Corporation publish a monthly known as *The Gramophone Record*. It contains a list of all new records made during the month and all Gramophone news of interest. It will be mailed monthly free of charge to anyone sending in their name to F. M. Prescott, who is their sole export agent.

Since Messrs. Hawthorne & Sheble have opened offices in New York City they claim that their business has increased two-fold from last year. Mr. Hawthorne's nephew, who is in charge of the New York office, and was formerly connected with the Philadelphia house, predicts the largest fall trade they have ever had since embarking in business.

The Greater New York Phonograph Company claim that their mail business has been exceedingly large considering the dull times. This company make a specialty of acting as purchasing agents for all kinds of talking-machine goods, etc., for all out-of-town customers at regular rates. Those desiring anything in their line will do well to correspond with them.

George Rosey's great cake-walk, "A Rag-Time Skedaddle," continues to be heard everywhere. The arrangement with words by Dave Reed, Jr., "The Rag-Time Skedaddler's Ball," has caught on, too, and many companies will put it in rehearsal for the season. Mr. Rosey has a novelty in composition ready for early issue, but its nature is still a state secret.

The Consolidated Phonograph Company, Ltd., of Newark, N. J., are working day and night filling large orders for export. They also report that orders are pouring in from all parts of the United States. Their catalogue of new process records contains the latest talent obtainable and is very complete.

The following is an extract from a letter which Miss Anna Barthold, the popular contralto singer, received from a prominent Phonograph Company: "We take pleasure in telling you that your records have been received with marked approval by all who have heard them. If at any time we can be of assistance to you in furthering your field of Phonograph work, command us."



The Lyric Phonograph Company intend to make a specialty of furnishing records to order for those wishing special records for advertising purposes. Those desiring same will do well to write for prices, etc. They are well adapted for this special kind of work, having all the necessary voices required, among them one of the best soprano voices that ever sang to a Phonograph.

We have been waiting patiently for news from the Polyphone Company in regard to their recent suit, and formed the conclusion that they are not quite ready to publish same, therefore, we shall reserve the decision for some future date. Word reaches us from dealers all over the country that they are doing an extensive business with the Polyphone and that the recent improvement has increased its value immensely.

In a recent interview with Mr. Henry J. Hagen, of the firm of Harms, Kaiser & Hagen, that gentleman said it was the intention of the firm to place on the market this fall something entirely new in the line of talking-machine records on which they have been working all summer and is nearing perfection. Their new catalogue will be ready in a few weeks. Mr. Kaiser, we are sorry to announce, has been very sick for the past week or so. His winning ways and pleasant smiles have been missed by many.

Messrs. Reed, Dawson & Co. of Newark, N. J., have opened an office and salesroom at 74 Cortlandt Street, New York City, near the Pennsylvania Railroad ferry, which, they say, will be handy for their many patrons. They are prepared to show a complete line of Phonographs, Graphophones, horns, stands, cabinets and general supplies of every description and will also keep on hand a large assortment of records both for the small type and Grand Concert machines, together with a full line of megaphones, batteries, etc. We wish them every possible success as they are hustlers.

Lieut. G. Bettini (unlike the majority of people who make a pilgrimage to foreign lands each summer in search of pleasure, also to spend a few good American greenbacks) makes two or three trips each year, combining business with pleasure. Though he receives as much, if not more, of the latter than the majority of people who simply travel for pleasure he has found, upon returning, that his ledger has a very large balance on the proper side. He sailed on the St. Paul July 19 for a trip of about three months during which time he will go to Liverpool, Manchester, London, Paris, Germany, etc., also paying a visit to his brother-in-law, Count Morra di Lavriano, General Italian Ambassador in St. Petersburg.

Mr. Steve Porter is manufacturing and selling Stereoscopic Picture Machines. These machines are beyond a question of a doubt some of the best that have ever been made in this line. His model No. 3 (small cabinet) is indeed a wonder, especially at the price for which they are being sold, and can be placed conveniently on a counter or show case. The mechanism of these machines represent the highest class of skilled workmanship, and upon dropping in the slot a nickel or penny, as the case may be, an automatic connection is formed and an electric light shows to the delighted spectator a series of wonderfully lifelike pictures. Mr. Porter has spared no pains to make this machine the best on the market, and certainly deserves to do a large business with it. The photographs are clear and distinct as he takes special care with them. This machine is called the Viviscope and is light and very handsomely decorated.

## Our Tattler

An amusing incident occurred in Rochester, N. Y., one morning recently. A prominent saloon keeper on the avenue installed a large Graphophone in his place during the previous evening. His chief assistant opened up about five o'clock the next morning and thought he would try the music box while getting ready for the day's business. Along came the milkman to deliver several cans of milk to exchange some of the fluid for beer.

The milkman dallied to hear the music box while one of his customers was waiting on the street for his arrival. Spying the milk wagon down the street in front of the saloon, she was very much astonished and indignant to hear the soprano solo in the sacred selection of the "Magnificat" and started for home in a rage of righteous indignation. At this juncture one of the firemen located across the street was on the lookout for either the ice or milk wagon and went across the street and asked the lady if she wanted some milk.

"I did," was the reply, "but you don't suppose I would ever again buy milk from a man who frequents a place of that character, where they have a woman drinking and singing all night until daylight in the morning.

To make matters worse the lady's husband was in the saloon to wash down his cobwebs and upon his arrival home attempted to explain about the Graphophone being the cause of his delay. But she would have none of it, exclaiming in an angry voice, "ye can't tell me anything of the kind. Did I not hear the shameless woman with my own ears?" And thus the innocent milkman lost one of his best customers.

Cal Stewart, author of the Uncle Josh Weatherby series of Yankee stories has had somewhat of a "variegated career" for a number of years in the western country. He was an engineer on several of the principal railroad lines. Some of Cal's experiences while in that capacity are of a decidedly humorous nature. While paying us a visit at our office recently Cal related the following incident in his railroad career:

"There was an Uncle Tom's Cabin Company touring that section of the country in which Cal was running and as they were to cover considerable territory on this particular line the railroad company furnished them with an engine and crew to remain with them while they were traveling on that line, and it fell to Cal's lot to be the engineer of that crew. On Monday night, after seeing the engine safely housed, Cal sauntered up to the Town Hall to see the show. He discovered that the character part known as 'Phineas Fletcher' was being doubled by several members of the company. Cal, in conversation with the manager of the company, commented upon this fact. The manager replied by asking what Cal knew about the character of 'Phineas Fletcher' or the piece in general? Cal told him if he had the wardrobe and was short-handed he would play that character for him for the remainder of the tour. This is probably the only instance in which an engineer pulled the train across the country in the day time and played a character part with the show at night, which Cal did to their entire satisfaction. Cal received his pay from the railroad company for his time, but all he had to show for his salary from the 'Uncle Tom' Company was a very badly worn 'Uncle Tom' wig and a lame bloodhound."

Readers of THE PHONOSCOPE should read the notice regarding the date of issue which appears on page 18.

## New Corporations

Myragraph Company, of New York. Capital, \$5,000. Director, Louis Chronick, of Brooklyn.

Brooklyn Phonograph Company, of New York City, Capital, \$10,000. Directors, Arthur A. Stafford and R. Stuart Miller, of Brooklyn.

Metropolitan Phonograph Company, Jersey City, N. J. Manufacture goods, ware and merchandise of every kind. Capital, \$100,000. Incorporators, Charles Mildenberger, Hugo Mildenberger and Arnold Stern, all of New York City.

New England Stylophone Company, organized at Kitterey, manufacture and sale of stylophone, capital stock, \$60,000, nothing paid in. Officers: President, R. S. Whitcomb, of Walden, Mass.; Treasurer, C. C. Corbet, of Boston, Mass.

The Standard Phonograph Company, of Newark, N. J., to make and sell Phonographs and Graphophones. Capital stock, \$50,000, of which \$5,200 is paid in. Incorporators, Wilfred C. Roszel, of East Orange, Percy J. Butterworth and Harry Bennett, of Newark.

The American Mutoscope and Biograph Co., have disposed of their rights for the mutoscope business for the State of Ohio, on a basis of five hundred mutoscopes. The entire capital, \$50,000, has been subscribed; contracts have been entered into, and company is composed of the most representative business men of Cleveland, making one of the strongest and most profitable sub-organizations in the United States.

## The Phonograph

Neath Egypt's sky at civilization's dawn  
First dwelt Music, the maid divine,  
Uncouth, unpolished though her rugged youth,  
Man's slumbering soul she stirred to life.

The merry minstrel her roving knight  
In many lands her banner unfurled,  
Then cross the mighty waters sped  
A conquering queen new worlds to seek.

Her charms with time but sweeter grew;  
All at her shrine in homage knelt,  
Then Science in his gloomy cell  
Grew jealous of her radiant reign.

In steely shackles he vowed to bind her  
Subservient mistress to his iron will;  
Her soulful strains should thrill all hearts,  
Her potent power uplift all minds.

So Science bade his subjects strive  
To wrest from nature the secret sublime,  
And weave rare flowers of melody  
In garlands everlasting.

Twenty years 'twas just begun,  
Genius to the task had pledged itself;  
Another score had almost fled—when, lo,  
The child of science softly sang.

Its crystal lyrnx with soul did voice  
Sweet songs of love and martial marches;  
The symphony grand, the opera immortal  
Was won with a wondrous ease.

Ambition athirst sought then to wrest  
From nimble pen its subtle craft;  
In mellow speech the message wove  
For distant friends—for commerce keen.

From nations took the babel of tongues,  
Sought oratory's strange spell of words;  
To man gave wisdom and pleasant hours,  
To lonely souls a nectar sweet.

J. E. WASENICH.



## The Films That Failed

### Emergency Experiences in Trying to Electrically Illuminate a Prize Fight

On Friday, June 9, at the building of the Coney Island Athletic Club, there was attempted a solution of an electrical and photographic problem, which, had it succeeded, would have resulted in successful kinetoscope films of the big prize-fight, in which Robert Fitzsimmons and James Jeffries were the principals.

The light conditions to be obtained were the illumination of a platform about 24 feet square, to such an intensity as to permit successful instantaneous photography of any objects or persons standing upon it.

It was essentially a hurry up job. A great deal of money was spent in making haste, and if so much haste had not been necessary there might have been more light. The lamps were 24 in number, and were supposed to consume from 50 to 80 amperes each at 80 volts. This current load it was found impossible to obtain either from the local lighting or railway circuits, and the immediate erection of a temporary plant, rheostats and systems of wiring was necessary; whereby hangs a tale.

The boiler of this installation was an upright tubular affair standing, with its short stack, some 30 feet high, and which, in its gaunt uncovered condition, looked as if it might have been resurrected from some saw-mill. Indeed, the local boiler inspector seemed to think so, for rumor has it that he objected to certain features of its construction, and declined to permit it to be used, and it is also said that this difficulty was gotten over by the simple device of passing both the inspector and the boiler. Certain it is that about 12 o'clock on the day of the contest steam was up in the boiler and hissing ominously out of the safety valve.

The engine which this boiler supplied was a bulky, single cylinder, Corliss type, and was mounted on a not too secure foundation of a few railway ties imbedded in the sand. The exhaust was piped off to a sufficient distance so as not to annoy the engineer, that being the only requisite which the occasion demanded.

When the engine was revolving at full speed there was a decided sense of insecurity, as it rocked and swayed, and there was every prospect of the fly-wheel suddenly finding the bottom of the pit which had been excavated for it, in which case engine and boiler would have undoubtedly constituted a very energetic and destructive merry-go-round, surpassing anything that has been seen, even on Coney Island. A long belt connected the engine with a generator which apparently was capable of developing as much as 150 kilowatts and rated at a pressure of 220 volts. A few beams driven into the ground, with two or three cross-beams, supported an ammeter and voltmeter and a telephone connected with the lamp platform, and a canvas roof, stretched upon posts stuck in the sand, housed the installation.

One of the leads of the dynamo was sent directly to the arc lamps and became a common positive for them all. The negative wire was split up into 24 sections, each passing through a rheostat on its way to the individual lamp that it supplied. The rheostats were of the liquid type, and here local conveniences were utilized, for each rheostat consisted of a substantial beer barrel in which were immersed two metal plates, the barrel being filled with water to which a

suitable modicum of salt was added. The arc lamps themselves were supported on a square platform surrounding the ring side and some 30 feet above its level. Each lamp was mounted on the floor of this platform and its beams were directed on the floor of the ring. The lamps consisted of a sheet-iron reflector on the back of which were mounted stout oak bars. The whole was pivoted at its lower end on a universal joint. Short projections from either end of the wooden bar accommodated a brass carbon holder adapted to carry an inch carbon. The upper carbon holder was provided with a rack attachment enabling the carbon to be fed down as occasion required or to be manipulated for the purpose of striking the arc, which occasion required much more frequently. Poised on thin supports the lamps looked over the edge of the platform like 24 interested and animated coal hods mounted on nodding stems. A switch and fuse-block completed the equipment of each lamp. Some of the switches of these lamps were capable of carrying fully 300 amperes and others were closely allied to the "baby"-knife class. Altogether it was as heterogeneous a collection as might be imagined. There were quick breaks, slow breaks and those that didn't break at all. The lamp circuits themselves were connected in many cases with wire equivalent to perhaps No. 12, and the fuse-blocks protecting them were found to contain short and very healthily looking pieces of No. 10 copper wire. As far as can be learned none of these fuses ever blew; they would doubtless have been a very permanent part of the installation had it not been that the management decided that it was better to remove them and replace them with fuse wire.

Some hours before the fight the plant was started up and each arc lamp was adjusted singly, telephone communication being had between the arc-lamp platform and the dynamo. The operator adjusted the carbons and called for more salt in the rheostats until the light was "about right," and the lamp was then extinguished and the next one adjusted in the same way. Each lamp operated alone gave a magnificent illumination and seemed to flood the ring with light, and it was fondly hoped that if each light proved thus satisfactory they would operate simultaneously with equal effectiveness. They were mostly adjusted for 60 amperes. Now, 60 times 24 is 1,440, and if the machine had this ampere capacity its total necessary watt output at 220 volts would be 317 kilowatts, a very fair over-load for a machine of apparently 150-kilowatt capacity at the very most. It seemed quite safe to predict its early decline and fall when the total lamp-load was called for.

And so indeed it proved. When the principals in the contest appeared and took their chairs in the respective corners, everyone was ordered to light up, but the success was by no means as general as the order. Perhaps 12 of the 24 lights lighted. The rest gave interesting little flashes and would not hold a permanent arc in spite of the utmost ingenuity in manipulating the adjusting screws.

While the operators were endeavoring to get their lamps started, the engine outside was laboring heavily; the piston was leaky and it could not develop anything like its full horse-power, and at any suggestion of a demand for current in the dynamo the entire plant slowed down. Finally, the likeliest looking lamps which had the saltiest rheostats were picked out to operate, and the others were turned out. The light was perhaps equal to about four of the lamps burning as they should have burned, and the kinetoscope films developed out innocent of any marks that would suggest a negative. Subsequent manipula-

tion of the circuits after the big fight was over, showed that the device of placing two of the lamps in series had a very beneficial result, and transferred some of the energy which was being consumed in the barrels on the outside of the building to the arcs within the reflectors, and subsequent unimportant bouts occurring on succeeding evenings were very efficiently lighted. The entire essay seemed to demonstrate that even in a hastily constructed plant where economy is no consideration it is well to make a few little engineering calculations as, for instance, those which compare the capacity of the machinery with the load that is to carry, and it also demonstrates the advisability of preliminary trial before risking an installation on an important venture. The actual money lost in this attempt could not have been far short of \$5,000, and it is easily possible that the Kinetoscope films had they been successful might have realized \$100,000.

Ample excuse for the projectors of the enterprise may be found in the lack of time, which, when it is taken into consideration, makes it surprising that any plant at all was erected; its subsequent successful performance when it was not needed is only a sad reminder of what might have been, although it demonstrates that, had there been time to properly install and connect the equipment, unqualified success was certain.

## No More Collisions at Sea

The greatest danger to ocean travels, collisions during a fog or at night, has at last been overcome. Thomas A. Edison, the electrical wizard, has solved the problem with a device as simple as it is safe. By the addition of a slight expense vessels can be equipped with the safeguard, through the use of which collisions between vessels at sea or on the great lakes would be almost impossible.

The appalling series of collisions at sea during the past year, resulting in the loss of thousands of lives and millions of dollars, caused Mr. Edison to give some time and thought to the question of reducing the safety of ocean travel to a minimum. Many safeguards presented themselves to his mind, and finally following upon the lines of the diving bell, he concluded that by means of diaphragms at the bottom and sides of vessels collisions would be averted. Experimenting upon these lines Mr. Edison found that the idea was not only practicable, but a perfect success.

The diaphragms, which would occupy but a small space at the bottom or sides of a ship below the water line, just large enough to admit a man's body, would be constructed of a light metal. A seaman stationed within could distinguish the revolutions of the screw propellers of another steamer at a distance of eighteen miles. Communication by telephone with the navigator of the ship would warn him of the proximity of the other vessel and put him on his guard.

That Mr. Edison's plan is entirely feasible is proved by the laws of science. It is an established fact that the denser the substance the better conductor of sound, and as that is nothing more compact than water, sound travels with unusual rapidity. One of the most simple illustrations of the rapidity with which sound travels is to place your ear on a steel rail. By this means the approach of a train can be detected when it is many miles away.



## The Telediagraph

### The Century's Latest Wonder

Civilization was shoved ahead many notches and a new milestone planted when a picture of the first gun fired at Manila was telegraphed from New York to Chicago, St. Louis, Philadelphia and Boston simultaneously over a single wire.

And then, after this miracle, other pictures were flashed back by telegraph from those cities over the single circuit to New York.

It was no experiment, but the practical commencement of the new business enterprise of telegraphing pictures, drawings, autographs and designs of all kinds by wire as if but ordinary telegraphic messages.

The machines had been tested and found to be in perfect order when six o'clock, the hour set for the long distance picture telegraphing feat, had arrived.

The machines are a little larger than one of Edison's Phonographs mounted on a cabinet stand.

Mr. F. Crane, the artist, produced the pictures to be sent. They were plainly sketched on sheets of tin foil six by eight inches square.

The newspapers connected with the long distance circuit were:—St. Louis *Republic*, Houlder Hudgins, correspondent; Chicago *Times-Herald*, Owen Oliver; Philadelphia *Inquirer*, George S. Lenhart; Boston *Herald*, L. T. Chapman. The preliminary adjustments of the machines had been made.

"Click! click!" rattled a telegraph "sounder" beside the machines. Superintendent Flynn, in communication with the main telegraph office of the big downtown Postal Building, said they had made up the circuit. That is, they had got all the offices of the five big cities connected on one wire running directly into the newspaper offices East and West.

"Click! click," went St. Louis. Then Chicago's "Click! click!" was followed by Philadelphia and Boston. The duplex wires had been "balanced"—the machines harmonized, "synchronized," and Mr. Crane, the telegraphic art superintendent, said the picture on the little cylinder, run by clockwork, was ready for sending.

Again "Click, click."

"All ready," answered St. Louis and Chicago, a thousand miles away, as Philadelphia and Boston tick-tacked back the same message.

Correspondents and editors hovered around the machine. A bombardment or an electrocution could have excited no more interest.

"We start in five seconds," click-clacked Superintendent Flynn at the telegraph key, with his racing watch in hand.

"One, two, three, four, five—Go!" The "switch" was "closed," the starting button pressed, and away went the picture of Dewey's Manila gun, over rivers, mountains and prairies, instantly, in the twinkle of a pretty girl's eye, into the busy, roaring newspaper offices half across the continent.

God's lightning flashed back from Chicago and St. Louis, from Boston and Philadelphia that "the picture is coming; it is perfect."

Next came a picture in return from each of these offices. The St. Louis *Republic* sent a sketch of Senator Major, the reformer, known as Missouri's Lexow.

From the Chicago *Times-Herald* came a picture of McKinley and Kobisaat, the editor.

The Philadelphia *Inquirer* sent a sketch of three men arrested for counterfeiting.

From the Boston *Herald* came a picture of the St. Louis horse that won the prize at the big horse show.

And thus ended the first practical long distance test of the new cylinder picture telegraphing machines put into commercial use.

At last the miracle is accomplished. In storm and sunshine, over rivers and mountains, across big States and wide continents, your portrait or a copy of your ten thousand dollar oil painting—your lost Evangeline—may be shot through space in a lightning's flash.

It is a marvellous invention, but as simple as it is wonderful. Perhaps it may be instructive to many readers to go back to the beginning of transmitting ideas by telegraph.

Professor Morse's original device of ticking off dots and dashes is the foundation of the system. To get a continuous current of electricity called a "circuit," two connected wires or other conductors are necessary.

A current sent over a Chicago wire from New York must return to its starting point or there is no circuit. It was early discovered that the earth is as good a conductor as any wire, and that by connecting the wire with the ground at Chicago and New York the current will complete the entire circuit.

As electricity travels around the globe sixteen times in a second, the interval between New York and Chicago is practically instantaneous. It is by suddenly breaking such a circuit by means of the ordinary telegraph key that the light and loud "ticks" are obtained.

If you strike a light, quick blow on the key in Chicago it is instantly repeated in New York.

After telegraphing by hand had been in practice for several years it was discovered that the "dots" and "dashes" indented in the slip of paper in Chicago the characters could be reproduced by running the strip of paper under the key.

It is on this principle that the Phonograph of to-day reproduces its records; the little invisible dots on the white cylinder when run under the bit of steel which originally made them will reproduce the song or speech at the other end of the wire.

This principle applied in telegraphing pictures works equally well. A drawing is made on a sheet of tinfoil wrapped around a cylinder in the machine similar to the wax cylinder of a Phonograph.

In Chicago there is a twin machine regulated to work in perfect harmony with the New York machine. In Chicago, instead of tinfoil, a sheet of carbon or manifold copying paper is placed between two blank sheets of paper. The New York current is turned on and the little needle or platinum point above the revolving cylinder in New York breaks the circuit when it touches the ink outlines of the picture.

The needle in the Chicago machine, which reproduces every pulsation made in New York, prints the same kind of a record on the carbon paper because the steel point beats hard on the cylinder, and thus the picture in New York is faithfully copied by electricity in Chicago. The simplicity of the system is its wonder.

Yet experts have been years in perfecting a machine that would be of practical commercial value. Mr. Ernest A. Hummell, of St. Paul, is the inventor. He set up his first machine in a newspaper office in January, 1898, when a picture of Mayor Van Wyck was sent over a six mile circuit without difficulty. Later, pictures were sent to the office from Camden, N. J., and Key West, Fla.

The success of the machine long ago passed beyond experiment.

Nothing is uncertain about the process. Whatever is drawn on the tinfoil here is absolutely reproduced at the other end of the wire, regardless of the distance.

The extraordinary possibilities of this invention seem incredible, yet they have been demonstrated beyond doubt. A picture, a portrait, an autograph

or a representation of a burned building can be faithfully sent either way while another series of pictures may go over the same wire in the opposite direction.

Talk of miracles! What do you think of this? Tom Platt's portrait and Parkhurst's flashing on the same wire two ways at once! And the wire does not melt nor its thunderbolts destroy the scenery en route, though operators feel the shock and politicians drop more or less dead.

Think of Miles and Alger shooting across the country on a single wire! Bryan's photograph and Bourke Cockran's passing like two bolts of red hot lightning through the terror stricken land!

Think of Croker's picture slipped over the wire to Albany, with Teddy Roosevelt's bound for New York, with Devery's and Moss' pictures playing hide and seek between the telegraph poles!

The invention is of profound service to the world because it is practical and of commercial value. In all directions it opens new fields of usefulness. With it the picture of the escaping municipal robber can be sent to the police long before the fleeing boss reaches the next station. A scene of a fire in Chicago, which takes place at ten o'clock at night, can be absolutely reproduced, line for line, at eleven. Words have come by wire for fifty years and now the actual scenes come in the same way.

## X-Ray Items

### X-Rayed A Motor Fraud

In revealing the unseen "works" which made a perpetual motion machine "mote" a new use has been found for the X-ray. There came to the office of a paper not long ago a box containing a mysterious machine. Along with it came a letter from a man in Bradford, Pa., who said that the machine was the invention of J. M. Aldrich, now serving a sentence in Auburn prison for obtaining money by fraud. Aldrich drifted into Bradford some time ago and succeeded in interesting several men in his perpetual motion contrivance.

After they had seen it "mote" and had scrutinized its exterior, they advanced money to the inventor to enable him to perfect his machine and get it through the patent office. But, as weeks went by, and Aldrich absorbed the money advanced him without any apparent result, the promoters became suspicious. At last Aldrich was locked up in the county jail, only to be released when the promoters concluded that they lacked evidence against him. Later he was sent to prison in New York State.

Aldrich's motor, like Keeley's, is ingeniously contrived to dupe anybody who thinks something can be made from nothing. Most perpetual motion machines don't go, but Keely's did and so does Aldrich's. Keely's motor was a big machine, immovable, and it was a simple task for its constructor to connect it by unseen tubes with the source of power under the floor, but this motor from Bradford can be carried about in a hat box, and its maker showed unusual mechanical skill in so concealing the "works" that it puzzled the experts who examined it. It is one of the most cleverly contrived frauds that ever drew money from the pockets of the gulleless.

So simple is the exterior construction of this motor that it seemed all the more wonderful to Aldrich's dupes. First, a square, thick, wooden base, seemingly a solid piece; on this block two posts, supporting a horizontal shaft; on the shaft, at its middle, a large fly wheel. Then, on the shaft, on either side of the fly wheel, straight arms at right angles to each other; at the ends of the



arms, metal weights on swinging levers—the movers of the motor. Many an inventor, chasing the will-o'-the-wisp of perpetual motion, has sought to make a wheel turn by gravity by placing about its circumference weights on hinged projecting arms, and having these arms throw the weights away from the wheel on one side and draw them in on the other. But, despite the most ingenious devices of those who have sought to disprove the laws of the conservation of energy, all these weighted wheels have refused to go.

This machine from Bradford, on the face of it, is an honest weighted-wheel motor, but unlike all other motors of its kind, it goes. With no uncertain motion does it go, either; it is so full of energy that it has to have a governor and a brake to keep it from running away with itself. A brake on a perpetual motion machine is impressive. The weighted levers of this machine are so attached to the transverse arms that in the downward half of each revolution they fall outward and forward, thus lengthening the radius of the revolution. On the upward half of the revolution the levers close up and the weights describe an arc of rotation with a shortened radius. As each transverse arm with its jointed lever and weight rises a little past the horizontal it slides forward and downward, thus throwing the weight on the opposite end still further from the center and increasing the turning moment on that side, at the same time decreasing the moment on the upward half of the revolution. The transverse arms are kept in place by means of small rocking levers which extend from steadying arms attached to the shaft.

After Aldrich had been sent to prison some of his dupes were still ready to believe that there was something in his motor. They couldn't make it go, however; something was wrong somewhere. So they sent to the patent office. The patent office is overrun with perpetual motion machines, and the examiners seldom stop to look at them. They haven't time. The motor was shipped back to Bradford. Then it was sent to the *Scientific American* office. The Bradford people wanted it taken apart and looked into; they didn't want to take it apart themselves, because they didn't know what infernal contrivances might be secreted in it. The examiners here looked it over very carefully and failed to find any concealed devices. They said it was the cleverest-looking motor they had ever seen. Rather than destroy the machine, they took an X-ray photograph of the innocent-looking wooden case.

The mystery vanished when the X-ray revealed the silhouette of a common, every-day clockwork, with its big steel spring extended. The gears were connected with the main shaft of the motor by means of a small rod extending through one of the posts, two bevel wheels in the top of the post serving to transmit the motion of the clockwork to the revolving shaft and weights. No wonder a governor and a brake were needed. The problem of concealing the joint, after the "works" had been inserted in the hollowed-out base of the machine, was solved by forming a bevel joint and making it coincident with the bottom edge of the base. This was skillfully done, and the effect was heightened by making the joining of the posts with the base rough. The thing was put together with artistic clumsiness. The keyholes by which the clockwork was reached were concealed under the base of the big brake. This block, it was found, could be lifted from the baseboard, but even then the two little keyholes were not of suspicious appearance, for they were made to resemble worm holes.

"We have no doubt whatever that Mr. Aldrich believed that his extensible arms, with the weights flung far out on one side of the shaft and drawn snugly in on the other side, would not only insure perpetual rotation, but in a machine of sufficient

size would exert a not inconsiderable number of horse power. As a matter of fact, even in a frictionless machine there would be no turning moment whatever, and as it was, Mr. Aldrich found that on starting his machine it was very quickly brought to rest by the energy consumed in overcoming the internal friction. If he had been content, as many another unfortunate had been before him, to consign his machine to the scrap heap, it would have been better for him and for his victims; but, being of an ingenious and resourceful mind, and doubtless 'tempted of the devil,' he conceived the idea of overcoming the troublesome friction by means of concealed clockwork, and, acting upon the thought, he carefully carved and whittled out the wooden bed plate of the machine and placed therein the springs and the train of gears. With perpetual motion so palpably accomplished, however, Mr. Aldrich saw in his creation a means of immediate if unlawful gain. Hence, three things followed: Many simple people were relieved of their money; Aldrich was given space for repentance within Auburn prison; and the *Scientific American* is enabled to 'point a moral and adorn a tale,' for the benefit of the all too easily snared investor."

## Photographs Made by X-rays from the Human Hand

### Metals are Penetrated by this Strange Subtle Power That Acts Like Light and Reproduces Likenesses in the Dark

Ottokar Hofman, of Argentine, Kan., who is well known in the West as a civil and mining engineer, has made the remarkable discovery that the human body possesses a hitherto unknown power which operates the same as light in photography.

Pictures have been taken by this human-light, or body-halo, by Mr. Hofman which are distinct and the limit of the accuracy and fineness of the reproductions varies, depending, so the experiments he has conducted indicate, entirely upon the state of the body.

Mr. Hofman has not given a name to the newly discovered force, but simply confines himself, in discussing the many interesting experiments which he has recently made, to the statement that a human body emits rays of some sort, which act upon a photographic sensitive plate in a way which is both interesting and puzzling.

This discovery opens up an entirely new field for experiment and investigation by physiologists, and it is believed that from even the little that is known of the new rays an important factor has been found which may indicate the approach of disease or the development of different disease germs in the body.

The experiments have shown that the rays are not light though they have a similar operation on a photographic plate. The human rays with some unknown subtle force behind them have the property of passing without change or interference through materials which are non-conductors of electricity, such as glass and rubber, and producing the same effects as if there had not been any foreign substance between the body and photographic plate, while if the substance is used as a conductor of electricity such as silver or lead the ray does not pass through it, but the same result is attained as if it did, apparently by the communication of the vibration of the ray to the sensitive film.

During the tests made by Mr. Hofman several hundred persons were given a chance to emit

the human ray. Some persons gave a faint demonstration on the film, others a very strong one, and a few gave no result, and yet after the lapse of a few hours the results were reversed, showing the difference of the chemical energy in the same body on different days. The temperature and moisture in the air apparently had no effect in the production of the rays.

Mr. Hofmann's experiments were conducted under all possible conditions to test the activity and penetrating power of the rays. The ordinary developing tray was employed, about half filled with the developing solution, and the film was such as every photographer uses. The tests were made in perfect darkness without the use of the developing lamp.

In order to get rid of the possibility that the photographs might have been taken by a chemical reagent, the film after being saturated was put between two glass plates so that there could not be any contact of air or communication between the fingers pressed against the outside of the glass and the film, and an almost perfect photograph of the fingers was produced after ten minutes' exposure.

This experiment and others demonstrated clearly that the reaction on the silver compounds of the film was caused by human rays and not by any chemical reaction. A silver dollar left on a glass plate over the film for hours developed nothing, but when pressed in darkness for ten minutes by the tips of the fingers a distinct impression of the dollar was shown without any of the details of the inscription on the coin.

The fingers were not imprinted upon the film, showing that the rays did not pass through the silver, but imparted their vibrations to it. In order to prove that it was the rays from the fingers which did the work two silver dollars were used upon the glass plate, and the one which was touched by the fingers only made the imprint on the film.

One of the best photographs of the fingers was obtained by Mr. Hofman by placing a hard rubber tray between the film and his hand. The usual ten minutes were used in making the test and a very clear imprint of the fingers was shown. The rays to do this work have to pass through rubber one-quarter of an inch thick.

It is expected that there will be some other strange developments by the further experiments with the human rays.

The mortal who sets out to get rich through the patronage of the blue-coated minion of the law is up against a pretty hard proposition. At least this is the impression that experience has created in the mind of the operator at a Chicago police station.

During his long nocturnal watches he found the station a lonely place and he hit upon a novel plan to make the dragging hours pass more quickly through the purchase of a Phonograph. It was a small affair with a "nickel-in-the-slot" attachment, but the operator dispensed with that part of the machine during his watches and kept the station filled with melody. When he goes home the free music stops and the ever yawning slot is supposed to work overtime gathering in the shackles of the musically inclined "coppers."

That is just what it did for a day or two. Then the officers became wise and the shackles became few. Instead of coin of the realm the capacious maw of the Phonograph began to contain slugs, tiny medals, pieces of lead and every conceivable device intended to defraud a helpless and inoffensive slot machine. The operator has gathered in a sufficient quantity of miscellaneous metals to equip a fair-sized junk shop and more is coming in daily.



## New Films for "Screen" Machines

The following list of new films has been compiled from lists sent us by the leading foreign and domestic manufacturers ❀ ❀ ❀ ❀ ❀ ❀ ❀ ❀

SCOTCH HIGHLAND FLING.  
TRIP TO THE MOON.  
SAILORS' HORNPIPE DANCE.  
HOW WOULD YOU LIKE TO BE THE ICE-MAN.  
JEFFERIES-FITZSIMMONS FIGHT.  
RAID ON A NEW YORK BOWERY SALOON.

ADVANCE OF KANSAS VOLUNTEERS AT CALOOCAN. From the thick underbrush where the Filipinos are massed comes volley after volley. They are making one of those determined stands that marks Caloocan as the bloodiest battle of the Philippine rebellion. Suddenly, with impetuous rush, Funston's men appear. They pause but a moment, to fire, reload and fire. The color bearer falls, but the standard is caught up by brave Sergeant Squires and waves undaunted in the smoke and din of the receding battle. This is one of the best battle pictures ever made.

ROUT OF THE FILIPINOS. A dense thicket at Caloocan showing tropical foliage and large trees. First one straggler, then another, then a whole body of flying Filipinos, retreating in disorder, firing occasionally, falling in the brush, and finally disappearing. A smoky haze hangs over the scene like a pall. Then comes the U. S. Infantry, crouching in the underbrush, firing and advancing steadily around the waving flag. Just as the advance is in full swing the officer in command is shot. Down drops his upraised sword and he falls forward.

U. S. TROOPS AND RED CROSS IN THE TRENCHES BEFORE CALOOCAN. Our troops have driven the Filipinos out of the trenches, and, after firing one or two volleys, press on in pursuit. The enemy returns the fire and the forward rush is marked by a trail of dead and wounded. Following close behind is the hospital corps. Stretchers are quickly brought and the nurses tenderly care for the fallen and carry them to the rear.

FILIPINOS RETREAT FROM THE TRENCHES. An incident of the Battle of the Trenches at Candabar. The enemy threw up a high earth embankment during the night, and are defending it with great stubbornness. The pits are crowded with Filipinos, who fire volley after volley. The artillery of the Americans plays havoc with their ranks and they fall back, leaving many dead. Their retreat is hotly covered by a company of U. S. Infantry, with mounted officer. They tumble over the embankment into the trench, fire a volley and advance. The officer carefully examines the earthworks, his horse picking his way cautiously over the bodies of the fallen foe.

CAPTURE OF THE TRENCHES AT CANDABAR. The Filipinos execute a flank movement and re-occupy the trenches, cutting off the advance guard of Americans. The rebel flag waves over the ditch and they defend their position bravely. A fierce charge by our soldiers makes them give way and they scatter in all directions. The officer in command pays dearly for his desperate sortie. Just as his horse clears the embankment the officer throws up his hands and falls backward with a crash; while the riderless horse dashes off toward the American lines. A picture full of exciting action and excellent detail.

## New Records for Talking Machines

The following list of new records has been compiled from lists sent us by the leading talking machine companies of the United States ❀ ❀ ❀ ❀ ❀

A Picture No Artist Can Paint Steve Porter  
A New York Girl is Good Enough for Me Mr. Havens  
Angels' Serenade (Violin Obligato) Miss Mann & Mr. Erdmann  
Any Sacred Solo (with organ) Miss Mann or Messrs. Havens & Hooley  
Because Anna Barthold  
Bugle Calls Wm. J. Styles  
By a Brook Sat a Lady Anna Barthold  
Because Steve Porter  
Cantilena (Violin) Ernest Erdmann  
Church Scene Old Homestead Original Lyric Trio  
Don't Be Cross Anna Barthold  
Duet from Carmen Miss Mann and Mr. Madeira  
Finnegan Dan. Quinn  
Good Night (Dorothy) Original Lyric Trio  
Hello, Ma Baby Anna Barthold  
Hey! Flanagan, Hello? Dan Quinn  
I'm Livin' Easy Dan Quinn  
I Want to Go To-morrow Dan Quinn  
I've Waited Honey, Waited Long for You Mr. Havens  
Just One Girl Anna Barthold  
Louisiana Lou (Violin Obligato) Miss Mann & Mr. Erdmann  
March Trio (Chariatan) Original Lyric Trio  
Mammy's little Pumpkin-Colored Coon Anna Barthold  
Melody in F (Violin) Ernest Erdmann  
Mid the Green Fields of Virginia Anna Barthold  
Musette—Offenbach (Cello Solo) Master Jean Moliere  
Mid the Green Fields of Virginia Steve Porter  
My Baby's Kiss Anna Barthold  
My Love's the Same Steve Porter  
My Creole Sue Steve Porter  
My African Queen Dan Quinn  
O That We two were Maying Miss Mann and Mr. Madeira  
O Hush a By Baby (Violin Obligato) Miss Mann & Mr. Erdmann  
Old Jim's Christmas Hymn Anna Barthold  
Ou Billow Rocking (Chimes of Normandy) Mr. Havens  
P. S. Mr. Johnson Sends Regards Dan Quinn  
Page Song (Huguenots) Miss Mann  
Reception Polka (Cornet) Wm. J. Styles  
Sacred Duets (with organ) Miss Mann & Mr. Havens  
Serenade (Mattioli) Miss Mann  
She was Bred in Old Kentucky Anna Barthold  
Simple Aveu (Cello Solo) Master Jean Moliere  
The Moth and the Flame Anna Barthold  
The Girl I Loved in Sunuy Tennessee Anna Barthold  
The Stuttering Coon Dan Quinn  
The Girl I Loved in Sunny Tennessee Steve Porter  
The Change Will Do You Good Dan Quinn  
The Cat Got it, Aunt Hannah Dan Quinn  
Think Once Again Before We Part Anna Barthold  
Traumerie (Cello Solo) Master Jean Moliere  
Waltz Song (Romeo & Juliet) Miss Mann  
When Dewey Comes Sailing Home Dan Quinn  
Waldorf Hyphen Astoria Dan Quinn  
You Got to Play Rag Time Dan Quinn  
Uncle Josh in Society Cal Stewart  
Uncle Josh and the Lightning Rod Agent Cal Stewart  
Uncle Josh in the Chinese Laundry Cal Stewart

### LATEST GRAMOPHONE RECORDS

A Day in a Country School Geo. Graham  
Anarchist Meeting Geo. Graham  
Almost Persuaded (sacred) Haydn Male Quartet  
All I Want Is Ma Chickens Len Spencer  
Bride Elect Banjo Duet Cullen & Collins  
Dance of the Brownies Banjo Joe Cullen  
Dancing in the Sunlight Xylophone Solo Chas. P. Lowe  
Dudley Buck's "Robin Adair" Haydn Male Quartet  
Fortune Teller March Banjo Joe Cullen  
Hands Across the Sea Sousa's Band  
How'd You Like To Be the Ice Man? Dan Quinn  
Kiss Me, Honey, Do Len Spencer  
Los Naranjos Spanish Selection Sig. Adamini  
Little Old New York Dan Quinn  
Let Me See the Old Plantation Len Spencer  
Mal Regendo Sig. F. Giannini  
Miserere from "Il Trovatore" Haydn Male Quartet  
Miss Helen Hunt Dan Quinn  
My Old Kentucky Home E. M. Favor  
Nearer, My God, to Thee Haydn Male Quartet  
Negro Funeral Geo. Graham  
Only Just a Little Yaller Coon Miss Mann  
Scarlet Letter March Banjo Joe Cullen  
Se tu la Vedi Sig. F. Giannini  
Selection from "The Sereuade" 22d Regt. Band  
Tell Her I Love Her So W. D. M'Farland

## The Latest Popular Songs

The following is a list of the very latest popular songs published by the leading music publishers of the United States ❀ ❀ ❀ ❀ ❀ ❀ ❀ ❀

A Large Front Room on Broadway Dillon Bros. 1  
A Little Dreaming by the Way (The Sun) Paul Lawrence Dunbar and John Carrington 1  
By the Lakes of Killarney Annie B. O'Shea 11  
Done Said All I Had to Say Hicks and Perrin 1  
Dream on Beloved Arthur Trevelyan 3  
For Love Alone J. Fred Helf 9  
Got Your Habits On John Queen 10  
He Carved His Name Upon the Tree Gussie L. Davis 10  
How'd You Like to be the Iceman? Helf & Moran 9  
I Couldn't Spell That Word Because I Love You J. Fred Helf and G. B. Alexander 10  
If You Were Only By My Side E. T. Paull 11  
If I Thought You Loved Me Yet John V. Hollar 9  
I'm Livin' Easy Irving Jones 2  
In Dear Old London Mathews and Luders 1  
I've Got Another Nigger on My Staff Sterling & Von Tilzer 10  
I've Just Come Back to Say Good-bye Chas. K. Harris 4  
Just For the Old Days Stanley Haskins 5  
Little Miss Vixen Louis Reinhard 9  
Lucy Dale Harry Linton 10  
Mah High Stepping Lady Newland and Brown 1  
Mamie Tracy Roger Harding 9  
Mary Had a Little Lamb Jos. Tabrar 9  
Mid the Green Fields of Virginia Chas. K. Harris 4  
Miss Divinity Austin Walsh 1  
My Love's the Same Roger Harding 7  
My Sunny Southern Home Roger Harding 7  
My Old Westchester Home Among the Maples Wm. B. Gray 9  
My Ann Elizer Malcolm Williams 5  
My Ababama Lize Wise and Pervin 5  
My Watermelon Boy Malcolm Williams 5  
My Black Bess Sterling & Von Tilzer 11  
Niggerism Williams Bros 4  
One Touch of Nature Makes the Whole World Kin Felix McGlennan 9  
Pretty Kitty Clover Roger Harding 7  
Quite a New Language to Me Edgar Smith and L. F. Gottschalk 1  
She is So Good to the Old Folks Oliver and Fay 1  
Si J'Etaiis Dien! (Were I Supreme) (O War Ich Gott) Herman Devries 1  
Smoky Mokes A. Holzman 10  
That's How the Rag-Time Dance is Done Sterling & Von Tilzer 10  
The Cake Walk in the Sky Ben Harney 1  
The Change Will Do You Good Ford and Bratton 1  
The Old Church Door Gussie L. Davis 11  
The Girl I Left in Dixie Waits for Me Wall & Speck 1  
The Sermon That Touched His Heart Tony Stanford 10  
The Stories Mother Told Me Sterling and Von Tilzer 10  
The Hottest Ever—Cake Walk Song J. O'Dea 4  
Two Little Roses from Mother to Me Harry Yeager 7  
Those Cruel Words, "Good-bye" Fred Helf 9  
'Tis Best For Us to Part Roger Harding 7  
Will I Find My Mamma There? Chas. K. Harris 4  
Without Your Love, Ah, Let Me Die Chas. K. Harris 4  
Will He Ever Return Vera Doré 3  
Wing Lee's Rag Time Clock Al Trahern 5  
You'll Get All Dat's a Comin' to You Sterling & Von Tilzer 10  
You Ain't Landlord No More Irving Jones 4  
You Never Was a Friend to Me Louis M. Pritzkow 1  
You're It Gussie L. Davis 9  
You Ain't the Man I Thought You Was Lew Sully 9

### LATE INSTRUMENTAL PUBLICATIONS

A Warmin' Up in Dixie E. T. Paull 11  
Egyptian Waltzes A. C. Kirkham 1  
Flagship Brooklyn (March) G. Savasta 1  
Great Ruby—March T. W. Hindley 5  
Just as the Sun Went Down (Guitar) T. P. Trinkaus 1  
Kentucky Cornshuckers March Rosenberg 8  
Plantation Echoes Otto M. Heinzman 11  
Rambling Ebenezer, Characteristic G. J. Trinkaus 1  
Shuffling Pete Cake Walk March E. F. Kendall 8  
Smoky Mokes A. Holzman 10  
Trip to Washington (March, Two-Step) W. V. Ullner 8  
The Gallant 71st F. Fanciulli 10  
Vienna Life (March) Fred Gagel 1

Note.—The publishers are designated as follows: 1 M. Witmark & Sons; 2 T. B. Harms & Co.; 3 F. A. Mills; 4 Chas. K. Harris; 5 Myll Bros.; 6 J. W. Stern; 7 Knickerbocker Music Co.; 8 Gagel Bros.; 9 W. B. Gray; 10 Feist & Frankenthaler; 11 E. T. Paull Music Co.



## Wants and For Sale

Special "Want" and "For Sale" advertisements will be inserted in this column at the uniform rate of three cents a word, each insertion. Answers can be sent in charge of "The Phonoscope" if desired. All letters received will be promptly forwarded to parties for whom intended, without extra charge.

*FOR SALE.*—Records, Records, Records. We will act as Purchasing Agent for those desiring records of any description: Regular rates; satis-

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Yours respectfully

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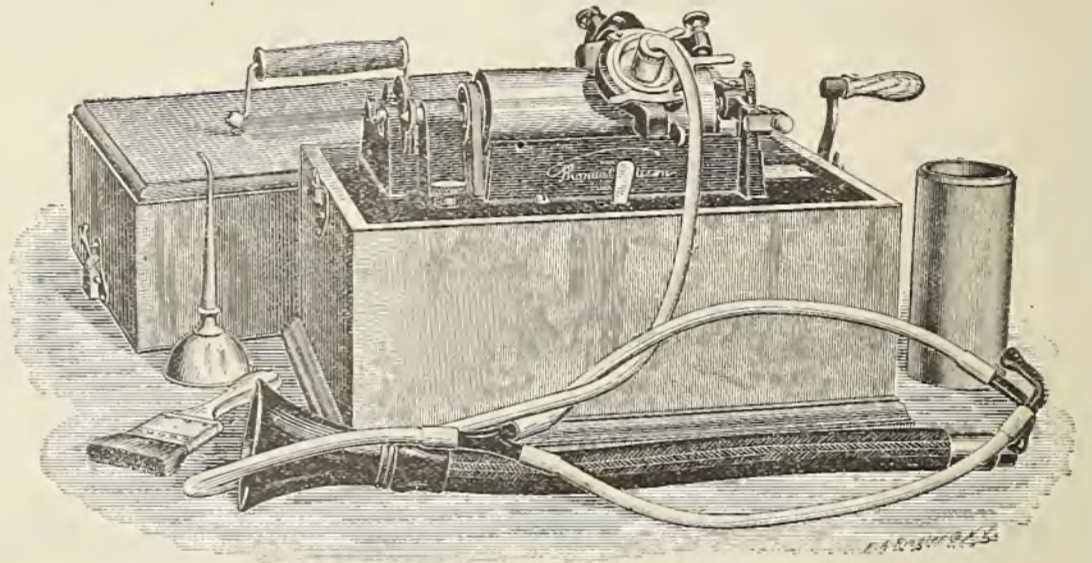
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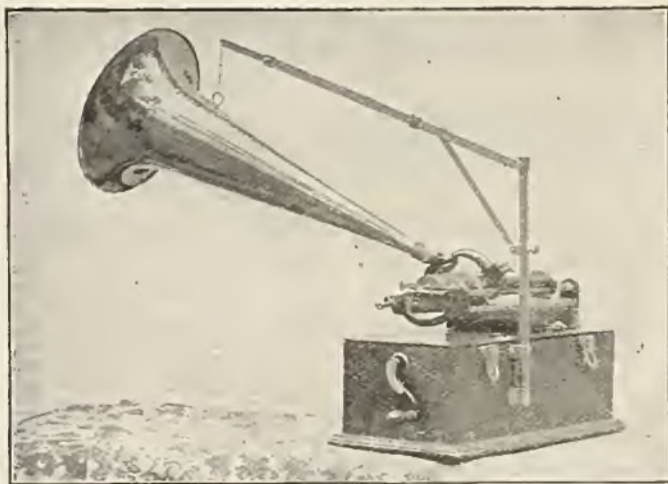
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New York, July 28, 1898.

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THE PHONOSCOPE PUBLISHING CO., Per E. IMANDT.

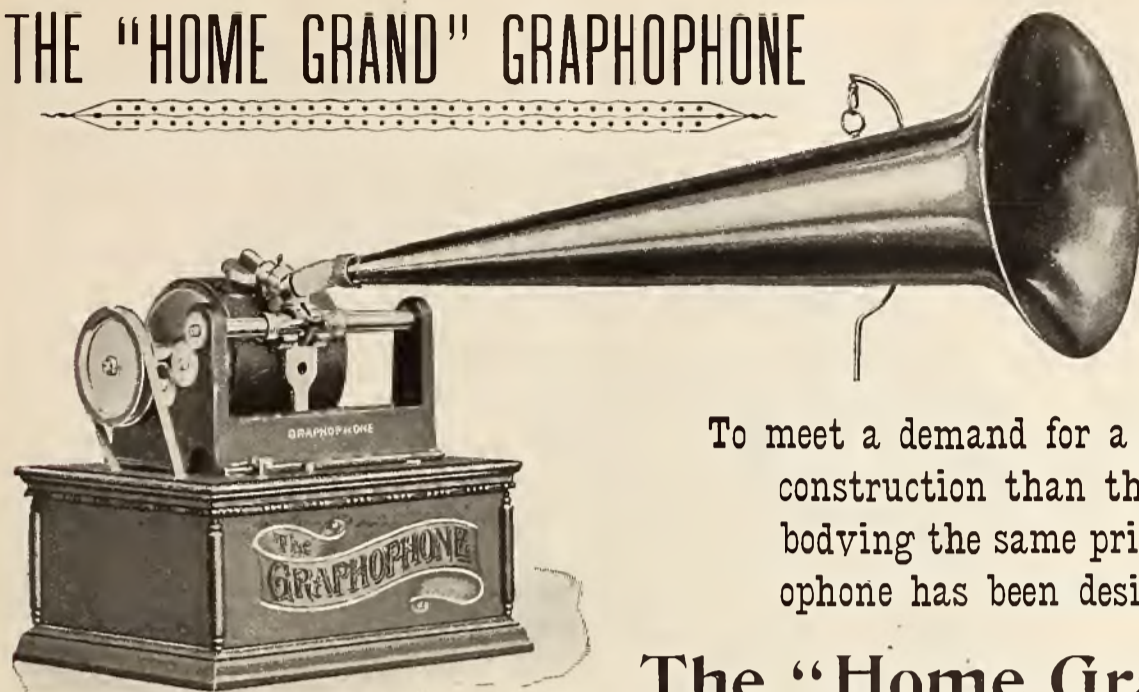
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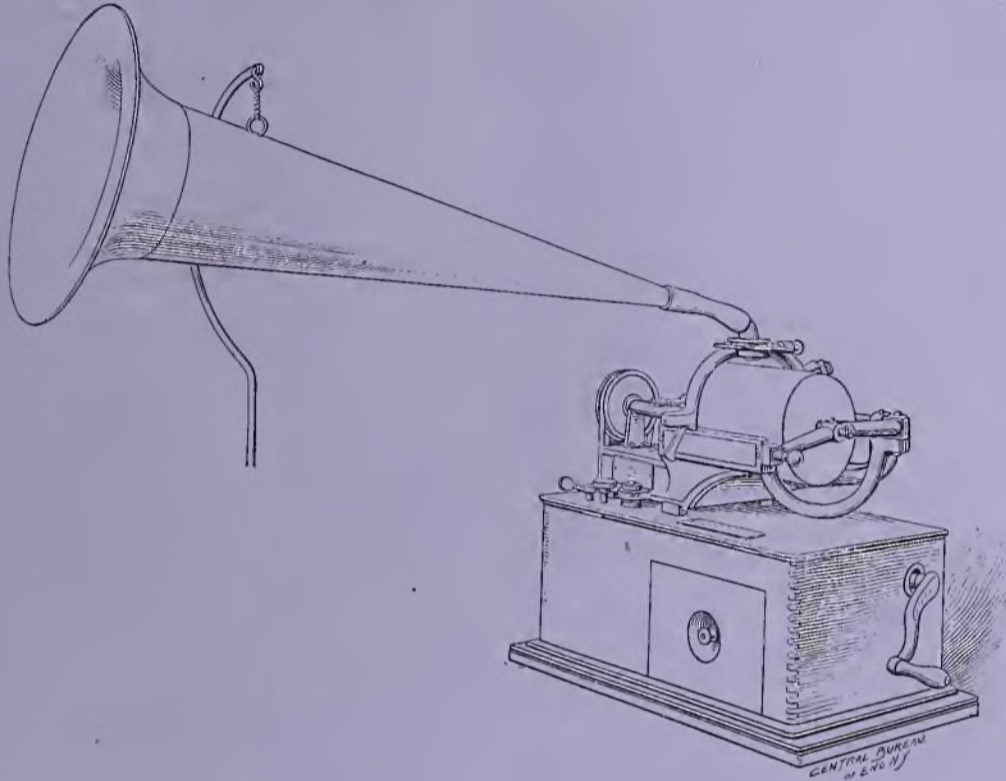
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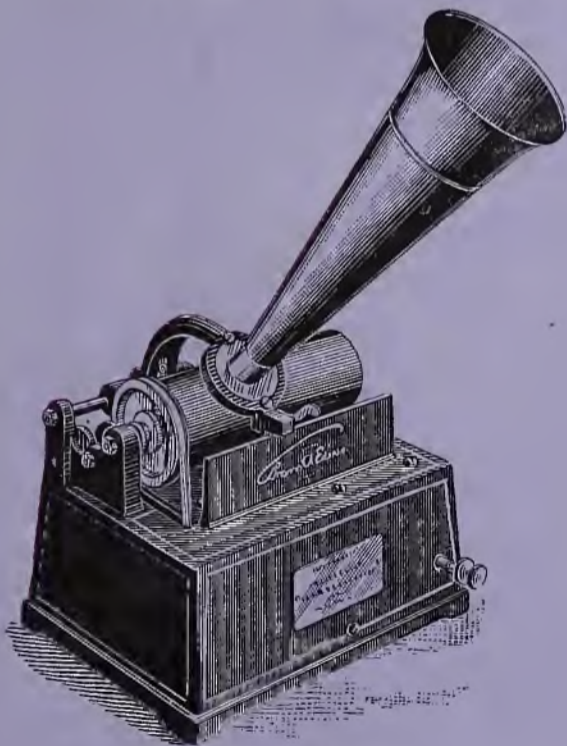
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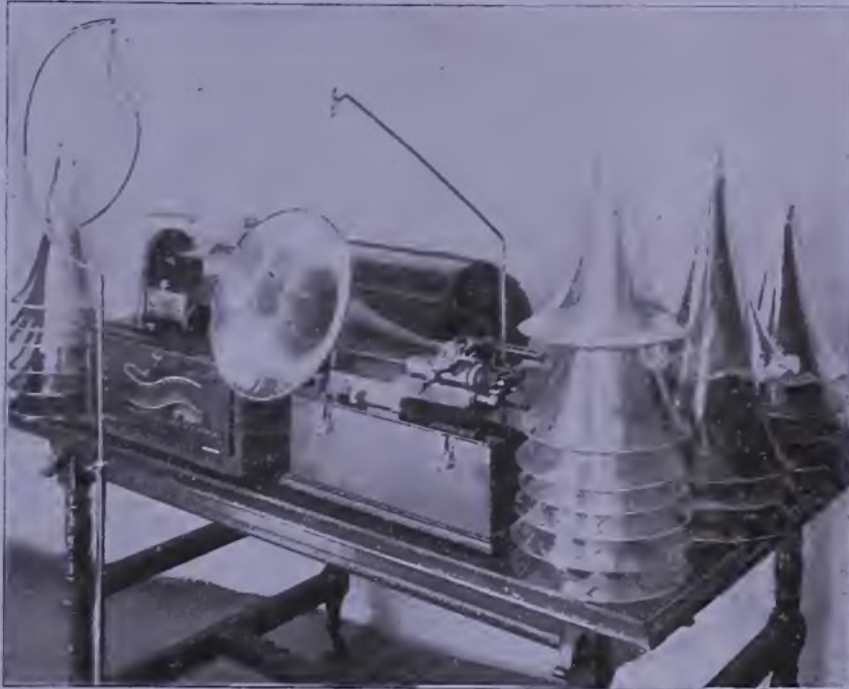
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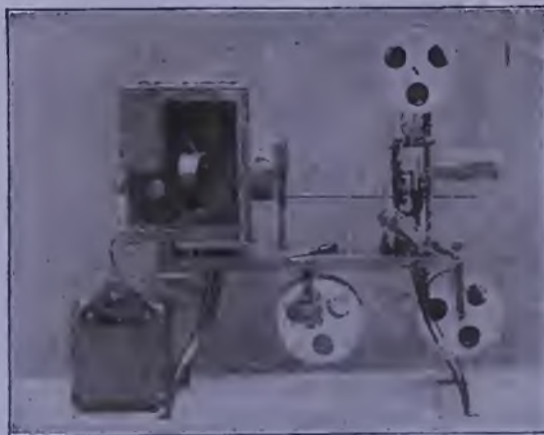
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