

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. 1

No. 4

NEW YORK, MARCH, 1897

* * *

Principal Features of this Number

* * *

ELECTRICITY WONDERS. Telegraphing Without Wires.

VITASCOPE BORN IN KANSAS. J. R. Bonheur made plans of one in 1886.

TALKING MACHINES. The Phonograph, The Graphophone.

OUR TATTLER.

SEEING SOUND.

WHERE THEY WERE EXHIBITED LAST MONTH.

FIGHT PICTURES A FAILURE?

LEGAL NOTES.

FOREIGN CORRESPONDENCE.

PICTURE PROJECTING DEVICES.

AUTOMATIC SLOT MACHINES. Strength Tester and Vending Machine. Automatic Banjo. Penny-in-the-Slot Electric Light Meters. Victory for Anti-Slot Machines.

A HOME-MADE KINETOSCOPE.

POPULAR SCIENCE.

'GRAHPS, 'PHONES AND 'SCOPES. The Spectroscope. The Micro-Phonograph. The Phonoplex.

LETTERS. Our Correspondents. Answers to Correspondents.

X-RAY ITEMS. The X-Ray in Law. Hope for Bald Heads. He Could See Light.

NEW RECORDS FOR TALKING MACHINE. New Records Manufactured by the Leading Companies.

THE LATEST POPULAR SONGS. List of the Latest Metropolitan successes.

NEW FILMS FOR PROJECTING DEVICES.

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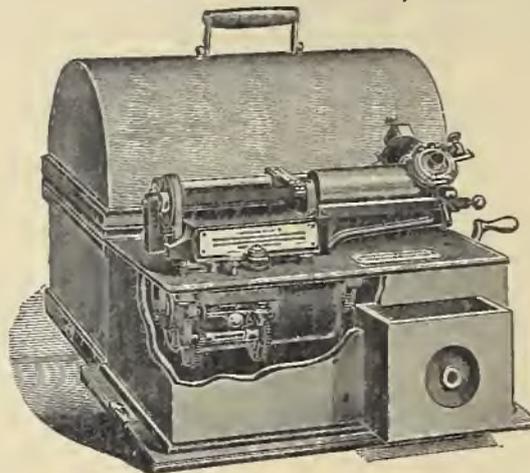
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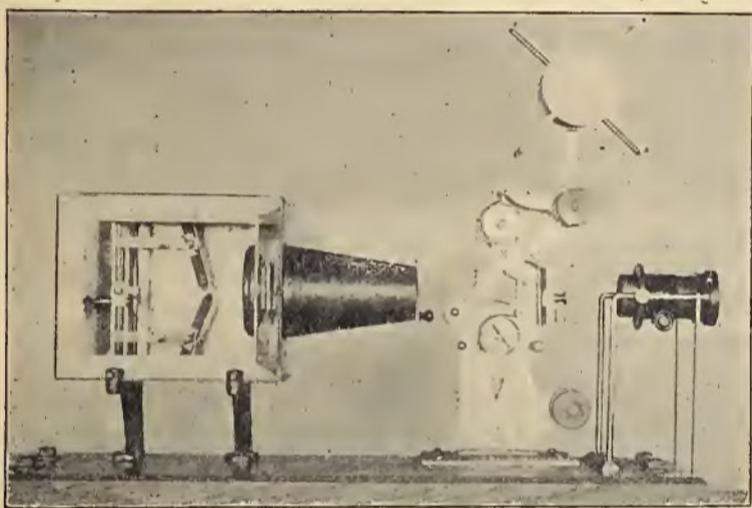
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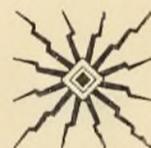
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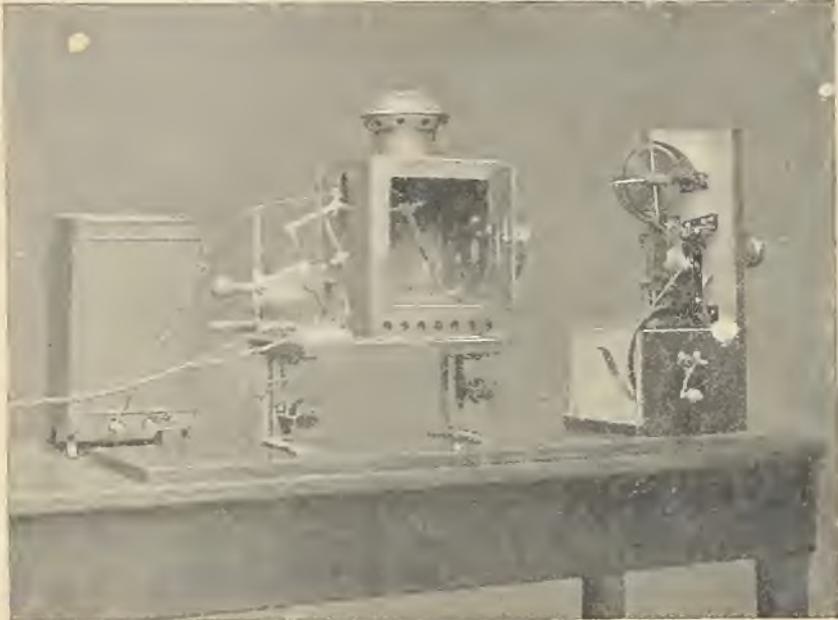
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The Phonoscope

(Copyrighted, 1896)

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

Vol. I

NEW YORK, MARCH, 1897

No. 4

Electricity's Wonders

Telegraphing Without Wires

The young Italian, Marconi, who is not yet twenty-two years of age, has been studying for some years the question of telegraphing without wires, and the results he has already reached are so extraordinary that but for the sponsorship of some of the leading telegraphic experts in London their acceptance might have been appreciably delayed. Marconi says we can telegraph without wires, not only through the air, but through solids. This was lately demonstrated to a limited extent in London by Dr. Chunder Bose, a learned Hindoo, who has also been working on electric waves. Popularly speaking, an electric wave in the ether, though it moves in all directions, progresses outward like a wave produced by dropping a stone in a pond. The water wave can be seen. An electric wave is, of course, invisible. Supposing a cork is floating on the surface of the pond at any distance from the place where the stone was dropped. This cork, when the wave reaches it, will bob up and down. Though electric waves cannot be seen, an arrangement has been devised which will indicate their presence as the cork does. This device, which detects and records the passage of the wave, consists of an electric radiator and a receiver for the waves, Dr. Bose placed his receiver in a room seventy-five feet distant from the radiator, with three walls of brick and mortar, eighteen inches thick between them. The electric wave projected penetrated the walls and traversed the distance with sufficient energy, when it was concentrated by a lens placed close to the radiator, to fire a pistol and ring a bell. It would, of course, have transmitted a telegraph message. Last September Marconi made a notable discovery. He was sending electric waves through the air and getting signals at the distance of a mile or thereabouts when he found that the wave which went to his receiver through the air was also affecting another receiver which he had set up on the other side of the hill. In other words, the waves were going either through or over the hill. Later experiments convinced Marconi that the waves actually went through the hill, which was three-quarters of a mile in thickness. This led to the conception and completion of a special apparatus, which is being tested in England under government supervision. The details of the invention are not yet given to the public, as the transmitter and receiver are not yet patented. The essential feature is the character of the wave produced.

Temporary Telephones

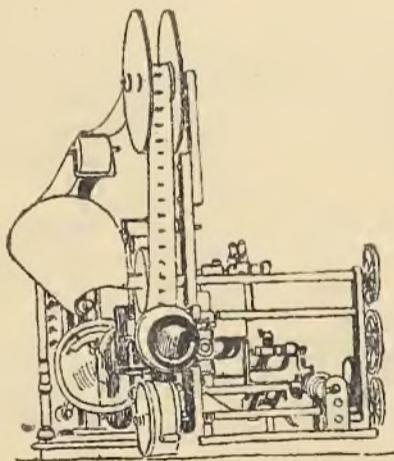
In many towns quite a feature of the telephone service is the number of instruments put in temporarily by the advice of the doctor, for service during the time when it is specially imperative that the patient should be free from excitement. This gives the friends of the family the chance of making inquiries without putting either party to the trouble of a formal call, and is usually very much to the

advantage of the patient. But the latest idea in telephone applications comes from Mobile, where the local telephone company is said to have arranged with patrons who are ordered to take medicine at frequent intervals during the night, to call them up on the telephone when it is time to take the dose. The receiver is carried to the bed and placed close to the ear of the sleeper, with a call bell of low tones. Another curious point has just been brought out. So many burglaries have been frustrated by the police appearing on the scene at a most inconvenient time for the burglars—in response to a telephone call from the inmates of the house—that the first thing a cracksman now does on getting into a house is to cut the telephone wires. This was done in a recent case of housebreaking, but the lady of the house quickly evened up matters by pressing a button at the head of the stairs and instantly lighting every electric lamp in the house. The disgusting publicity which this involved was too much for the feelings of the thieves, who forthwith decamped.

Vitascope Born in Kansas

J. R. Bonheur Made Plans of One in 1886

The credit of first advancing the idea that resulted in kinoscope, the vitascope and other scopes of the kind, is said to belong to a Kansas man. In 1886 J. R. Bonheur lived in Kansas; he is said to be dying of consumption in Algona, Ia., to-day. When he lived in Kansas he was an ardent student of optical synthesis for scenic illusions.



MACHINERY OF THE ANIMATED PICTURE MACHINE

In 1885 he sent to Edward L. Wilson, a photographer in Philadelphia, the plan of a projecting machine with which he proposed to reproduce "soap spots" of living objects so connected that there would be no extinction or eclipse between the

postures; the images appearing life size amid scenery and accessories upon the stage.

Photogenic films were not considered in his plans. He proposed to join glass views of continuous action in the form of a chain or belt and move it through the optical system of a projecting instrument.

The views were to be brought into place in rotation by means of a winch or crank, the effect of each displacement effaced by a quickly revolving shutter. He claimed this mechanism would produce harmonious continuity by combining each posture with its predecessor without apparent break, thus realizing the construction of an entire scene or play, showing images of human beings instinct with vitality.

The plan seemed either too visionary or incomprehensible. At any rate it was ignored by the eminent photographer. Without loss of time the manuscript found its way into the waste basket.

A few months later Mr. Bonheur and his two brothers were giving scenic exhibitions in McPherson County, Kas. They traveled in a wagon fitted up like a cottage on wheels. One day they got shelter for their horses at the ranch of George Nelson, about one mile from the Garfield schoolhouse, where, that night, they gave an exhibition. It was January 6, 1886, memorable for the awful blizzard that surprised the audience on its way home. For thirty-six hours the storm raged. All next day and far into the following night the three brothers were housed in their wagon. The last bit of corn had been burned in the schoolhouse stove during their exhibition, and the want of a fire for warming the wagon added to the terrors of the long hours. To venture out in such a storm would have been certain death. When the storm subsided the snow had transformed the prairies into hills of drift, so high over hedges and deep on the level that further travel was impossible.

It was while the rest of the company beguiled the winter evenings before Mr. Nelson's blazing fire, playing chess and dominos, that J. R. Bonheur again set to work on his plans for an animated picture machine, intending to send them to Edison, which he did, believing that he was the only man who could perfect such a machine. His references to the multi-camera of Muybridge, with which to obtain the pictures, and to the optical effects of the zoetrope and Prof. Dancer's experiments for illustration, received due notice the following year when Thomas A. Edison commenced his experiments and the embodiment of the plans in a nickel-in-the-slot machine.

Not until April, 1896, did Mr. Edison make a public exhibition of the vitascope, which excited the wonder and amazement of all who saw it transform dead pictures into living, moving realities, and for which he claimed the control of the entire world, and announced his readiness to negotiate rights in any country which might be named.

Since that date ten or more different animated picture machines have been invented, equally successful, and offered for sale without any restriction as to ownership or right to exhibit.—*Kansas City Star.*

The Phonograph

In December, 1877, a young man came into the office of the *Scientific American*, and placed before the editors a small, simple machine about which very few preliminary remarks were offered. The visitor without any ceremony whatever turned the crank, and to the astonishment of all present the machine said: "Good morning. How do you do? How do you like the phonograph?" The machine thus spoke for itself, and made known the fact that it was the phonograph, an instrument about which much was said and written, although little was known.

The young man was Edison, and the phonograph was his latest invention. Even then he was a well-known and successful inventor. The invention was novel, original and apparently destined to find immediate application to hundreds of uses. Every one wanted to hear the wonderful talking machine, and at once a modified form of the original phonograph was brought out and shown everywhere, amusing thousands upon thousands; but it did not fulfill the requirements of the inventor. It was scarcely more than a scientific curiosity. Edison, however, recognized the fact that it contained the elements of a successful talking machine, and thoroughly believed it was destined to become far more useful than curious or amusing. He contended that it would be a faithful stenographer, reproducing not only the words of the speaker, but the quality and inflections of his voice; and that letters, instead of being written, would be talked. He believed that the words of great statesmen and divines would be handed down to future generations; that the voices of the world's prima donnas would be stored and preserved, so that, long after they had passed away, their songs could be heard. These and many other things were expected of the phonograph. It was, however, doomed to a period of silence. It remained a toy and nothing more for years.

The original instrument consisted of three principal parts—the mouthpiece, into which speech was uttered; the spirally grooved cylinder, carrying a sheet of tinfoil which received the record of the movements of the diaphragm in the mouthpiece; and a second mouthpiece, by which the speech recorded on the cylinder was reproduced. In this instrument the shaft of the cylinder was provided with a thread of the same pitch as the spiral on the surface of the cylinder, so that the needle of the receiving mouthpiece was enabled to traverse the surface of the tinfoil opposite the groove of the cylinder. By careful adjustment this instrument was made to reproduce familiar words and sentences, so that they would be recognized and understood by the listener; but it was necessary that the listener should hear the sounds uttered into the receiving mouthpiece of the phonograph to positively understand the words uttered by the instrument.

In later instruments exhibited throughout the country and the world, the same difficulty obtained, and perfection of articulation was sacrificed to volume of sound. This was necessary, as the instruments were exhibited before large audiences, where, it goes without saying, the instrument, to be entertaining, had to be heard. These instruments had each one mouthpiece and one diaphragm, which answered the double purpose of receiving the sound and of giving it out again.

Finally it was made known to the public that the ideal phonograph had been constructed; that it was unmistakably a good talker; and that the machine, which most people believed to have reached its growth, had after all been refined and improved until it was capable of faithfully reproducing every word, syllable, vowel, consonant, aspirate and sounds of every kind.

During the dormancy of the phonograph, its inventor secured both world-wide fame and a colossal fortune by means of his electric light and other well known inventions. He devoted much time to the phonograph, and not only perfected the instrument itself, but established a large factory provided with special tools for its manufacture.

The phonograph is now used for taking dictation of any kind, for the reproduction of instrumental and vocal music, for teaching languages, for correspondence and for various other purposes.

A very interesting and popular use of the phonograph is the distribution of the songs of great singers, sermons and speeches, recitations, the words of great men and women, music of many parts, etc., so that the owner of a phonograph may enjoy these things at little expense.

The perfect performance of the phonograph depends upon its mechanical perfection—upon the regularity of its speed, the susceptibility of the wax cylinder to the impressions of the stylus, the delicacy of the diaphragm, and the skill used by the operator in recording and reproducing the record.

The Phonograph's Jag

It was nearly midnight!

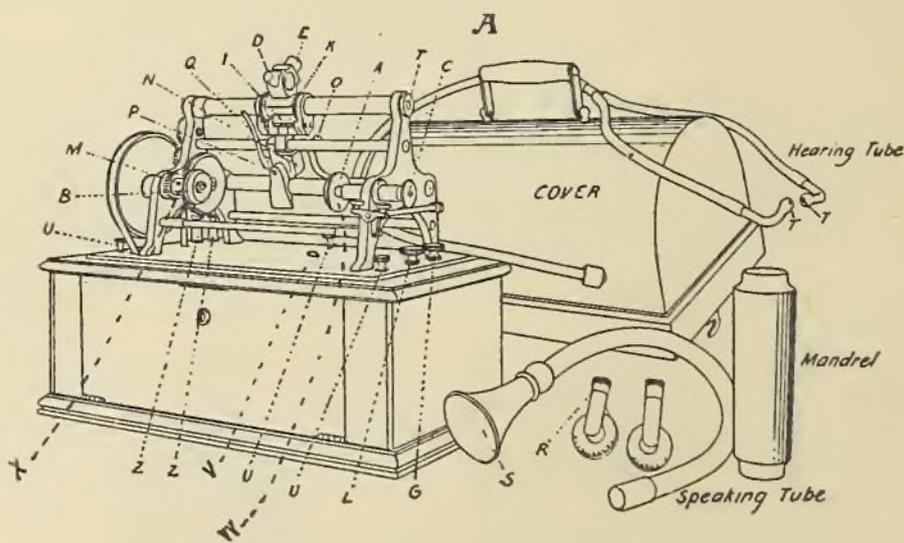
The last train for New York had left the Erie Railroad station in Rutherford standing where it had stood for many a day. But the lights in the Erie Hotel still sparkled merrily and invitingly. Inside the hostelry there was silence. The proprietor was behind the bar interviewing the thing that rings a bell and shows you what the round

cost. In front of the abdomen rest stood a tall and wide German. He was tired, and his Italic posture plainly showed that he had taken several during the evening. The bartender was quietly wiping off the receptacles of torture and putting them to sleep for the night. Beyond the clink produced by this operation there was no sound. In fact, it was so quiet that one could almost hear the peppermint drops upon the shelf back of the bar.

The weary German had meanwhile been indulging in abbreviated siestas, until he was suddenly brought back to real life by an idea, which struck him somewhere above the neck and beneath the hat. He had become seized with a strong desire to listen to music. Evidently his dreams had partaken of a torchlight procession nature. By a circuitous route and easy stages, he finally managed to reach the phonograph which was sleeping peacefully in one corner of the room. Leaning one elbow upon Edison's wonder to steady himself the Teuton extracted a nickel from one of his pockets, allowed it to trickle down the alleyway leading from the slot, and then stuck his head into the brass funnel projecting from the top of the instrument. The man in the cellar didn't appear to be working, however, and after listening intently for several minutes, the disappointed German removed his head from the funnel, took himself to the bar, bought a beer and returned to the phonograph, carrying the beverage in his south paw. For a moment he gazed wonderingly at the big box, then he muttered something about it "being dry," and dashed the beer into the brass funnel. After thus cooling the coppers of the phonograph, he placed the empty glass upon the bar, buttoned up his cardigan jacket and went home.

And now it is said that the phonograph is doing a rushing business at furnishing jags by electricity at five cents per jag.

The Graphophone



The Columbia Graphophone

INDEX OF PARTS

[As promised our readers in our last issue, we illustrate above the Columbia graphophone with parts marked and described.—E.D.]

A	Driven Chuck	L	Speed Adjusting Screw
B	Driving Chuck	M	Driving Chuck Holding Screw
C	Driven Chuck Thumb Pieces	N	Shaving Knife
D	Trunnion	O	Knife Bar
E	Trunnion Seat Tube	P	Sapphire Shaving Blade
G	Motor Switch	Q	Knife Bar Locking Lever
I	Feed Nut	R	Reproducer
K	Carriage	S	Speaking Tube
		T	T Hearing Tube Ear Pieces
		T	Feed Screw
		U	U U U Thumb Screws for Attaching 11-Way
		Z	Z Binding Posts

Our Tattler

The plethysmograph is the pleasant name of a newly discovered instrument by which thought is measured. Emotions can be registered, dreams arranged to suit, every idea graded so that the investigator can read precisely what is going on in a sleeping man's brain. If this most wonderful achievement in the realm of science is only perfected and simplified to the extent of bringing it within the reach of all, what a treasure a plethysmograph must be in a family where the head of the house is apt to be secretive and forgetful! But no! there must be a limit to experiments. Let us admire the Italian scientist who has invented this delicate "pulse measurer," but don't let us buy one even if they are found on a Monday bargain counter.

I understand that a Toronto man has invented a machine which he called the "mugaphone." This is a great find for circus and minstrel show advance agents and patent medicine shouters, that is, if it is what the name implies—sounds from the "mug."

The "lobsterscope" is the title of the new feature which was put on at Weber & Fields's, New York, last month. It is the invention of Joseph Herbert and up to date. It is a burlesque on other screen machines.

Mr. George J. Gaskiu informs me that he intends to take a trip to the "old country" this summer. George says that the wax cylinders have revolved very kindly for him this season and he must "spend some of it."

"I've a new cure for insomnia," said a busy young surgeon—there are a few—the other day. "I haven't tried it myself, but a friend of mine has and he says it works like a charm.

"Like most great inventions, it was discovered quite accidentally. In the first place, I generally keep pretty late hours. One has to, you know, in my profession. At any rate—well, never mind! the hours are late. As I have just intimated, I take a great interest in my profession and I have written a few things along that line. Well, sir, when I get fairly into bed, with the lights out and everything favorable for sleeping, what do you suppose my old brain begins to do?

"It begins to scintillate. Oh, yes, it does. It gets right down to work, and it turns out some of the best ideas along the line of surgery that the medical profession has ever heard. But, you bet I can't be hopping up at 4 A. M. and lighting the gas in order to put these things down on paper. Why, I'd never get any sleep if I did. So I try to fix the idea in my mind and hammer it there with about fifty ways of thinking of it in the morning, and then I turn over and go to sleep, or used to.

"Well, of course you anticipate that I didn't remember the idea in the morning. Not a bit of it. Gone, clean gone! It was dreadful. I tried all sorts of ways out of the difficulty, and finally I landed on the brink of insomnia. I'm not dead sure that I wasn't over the brink. If I lay there in bed and tried to impress the idea so firmly on my mind that I couldn't possibly forget it in the morning, I got myself so wide awake that I could fairly feel my eyes popping. Then I tried another plan. I would get up, light the gas, write out my inspiration, and then put the gas out and woo sleep again. But it wasn't any use. I lay awake for hours.

"Finally, a brilliant idea struck me. Said I to myself:

"If I could just lie there in the dark and think my thought and be done with it I'd be all right! By George, I'll do it! I'll get a phonograph and

think out loud when I've any thoughts that are worth preserving."

"I didn't get around to the phonograph, however. It was last spring when I thought of it, and during the summer I ran down in Jersey to spend Sunday with a literary chap I know down there. Well, sir, what do you think was the first thing I saw in that fellow's room, jammed up close to his bed as if it were an animal ready to swallow him? Oh, of course you guess! It was a phonograph.

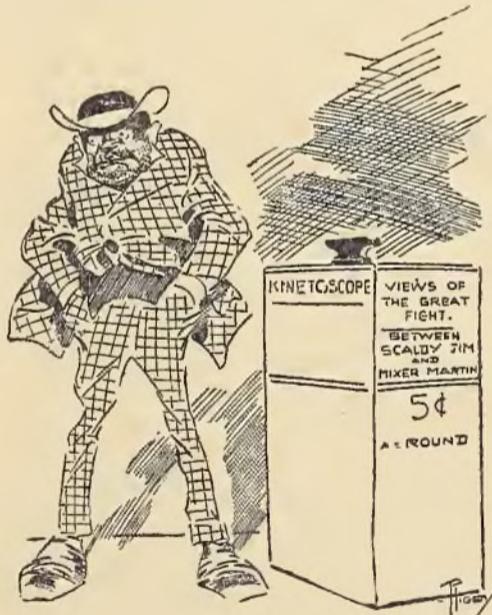
"Hello!" I said, "that's a good idea! I know what you've got that there for. I'm going to do the same thing myself. I've let fame and fortune get away from me because I haven't had one of those things handy."

"Well, the fellow smiled and blew the dust off the cylinder.

"Yes," he said, "I know. That was my idea, too, when I bought this thing. I'd been doing that old trick a long time myself. I've lost a library full of masterpieces by not remembering the things I thought of during the night. But, I'll just tell you that the phonograph won't make you famous that way. Not by the whole ladder! But it's a good thing, just the same. Because a cow isn't a canary bird is no sign that it isn't an excellent cow. This phonograph hasn't favored me with any echoes of my night thoughts but—hold on! do you want to hear a snore that is a snore? A regular titanic, sixty-fathoms-deep breath from the ocean of oblivion?

"If you'll believe me, the fellow got out a cylinder, put it in, and turned on the machine. Talk about circumstantial evidence! If that man had produced watchers who had sworn that he never closed his eyes in sleep, that phonograph would have convicted them all of perjury. Oh," and the young surgeon closed his eyes with a sigh of envious rapture, "to sleep the way that man did when that phonograph was taking its observations! And he says he does it every night. He hasn't had a single dead-of-the-night idea to confide to that phonograph, and he vows it is a sure cure for that form of insomnia."

SEEING HIS OWN FINISH



SCALDY JIM—I tell yer wot, it's purty tuff fer a feller ter drop his good dough inter one o' dem boxes ter de sole pleasure of witnessin' himself gettin' licked.

There was a biograph at Keith's and a bioscope at Proctor's in New York City. Were they twins or only first cousins? It was the intention of the vitascope people last Summer to put out a cheaper machine, the vitagraph. Possibly this is a similar idea; but the conflicting machines are pretty close together.

Seeing Sound

Sound is produced by the vibrations of the air, which communicate themselves to the tympanum of the ear and thus to the brain center of life. In a vacuum, sound is not possible.

Air, however pure and rarefied, is still matter, and naturally friction is produced when its component parts are suddenly disturbed or compressed, and it follows just as naturally that these compressed parts will be of a more opaque shade than the surrounding ones, and thus become distinguishable to sight. The passage made through the air is as distinguishable as the passage of a ship through water. It piles up the air, cuts through it and leaves a trail of smoke like air waves behind.

Many times and by various means it has been demonstrated that the air vibrations differ in intensity, shape and volume. Sand scattered on sounding plates will gather in well defined lines and figures, according to the note sounded and the instrument used.

As all sensations are produced by vibrations reacting on the nervous system, there can be no doubt but that sooner or later, by a close analytical study, we shall come to possess an instrument to record all the manifestations of our various senses.

Where They Were Exhibited Last Month

The Projecting Kinetoscope

Opera House, Hartford, Conn.; Criterion Theatre, Brooklyn, N. Y.

The Projectograph

Opera House, Budapest; Barbadoes, West Indies; Chicago, Ill.; London, England; Uniontown, Pa.; Boston, Mass.; Philadelphia, Pa.

The Vitascope

Academy, Richmond, Va.; Y. M. C. A., Norfolk, Va.; Columbia Theatre, Washington, D. C.; Vitascope Hall, Washington, D. C.

The Projectoscope

First Presbyterian Church, Bloomfield; Franklin Street Church, Newark, N. J.; Opera House, Wilmington, N. C.; City Opera House, Frederick, Md.; Masonic Temple, Richmond, Va.; Academy, Portsmouth, Va.

The Cinematographe

Proctor's 23d Street Theatre, N. Y.; Pleasure Palace, N. Y.; Academy of Music, Brooklyn, N. Y.; Grand Opera House, Boston, Mass.

The Biograph

Keith's, N. Y.; Hopkins, Chicago, Ill.; Keith's, Boston, Mass.; Willard Hall, Washington, D. C.

The Bioscope

Tony Pastor's Theatre, N. Y.

The Kineopticon

Opera House, Chicago, Ill.

The Cinematoscope

Fergusou & Frederick's Store, Wilkesbarre, Pa.

The Kinematograph

Huber's Museum, N. Y.; Gaiety Museum, N. Y.

The Centographe

Unity Hall, Hartford, Conn.

THE PHONOSCOPE

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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.

To-day, wherever we go, we find in conspicuous places and in almost every form mechanical contrivances, which, on the insertion of a coin of predetermined value and size, enter into various operations. They are generally known as automatic machines, and distinguished by the particular purpose they serve. Thus, there are automatic weighing machines to indicate the weight of the person, who, on dropping a nickel in a slot provided for that purpose in a convenient part of the machine, steps on to the weighing platform attached to it. There are machines which in a similar manner sell and deliver boxes of candy, matches, cigars, cigarettes, pencils; there are others that serve to supply automatically opera glasses, small luncheons, consisting of crackers and a glass of lemonade; there are even some for the automatic sale and distribution of ice cream and hot coffee. On some of the railway stations in England the platforms are crowded with these machines. There are, moreover, machines where, on the insertion of a nickel the customer can test the strength of his fist and his skill or ability as a boxer, and others where, on the same conditions, he can experience the pleasant or unpleasant sensation of an electric shock. Lately automaticity has come into use in perhaps more sober directions, since, among other industrials who found it hard to collect their bills, some gas companies have introduced to their customers automatic gas meters, which necessitate the insertion of a coin into the ever-greedy slot before a given quantum of gas will pass the meter; when this has been consumed the operation has to be repeated by the insertion of a further coin. In the Jardins d'Acclimatation of Paris may be seen in use some very fine looking machines, which, for a small coin inserted in a slot of the machine, will photograph the customer, provided he places himself according to the directions on the machine. After a while this photograph, neatly framed, drops out at the place indicated. There are many other contrivances, too numerous almost to mention, which are set in motion on the insertion of the humble coin.

There is nothing new under the sun, and the principle of automaticity is no exception to this rule. Starting mechanical apparatus by means of coins inserted into them is as old as mechanics. Thousands of years ago Herodotus found automatic machines in ancient Egypt, where they were chiefly used (mirabile dictu) in connection with the worship of the gods, instilling a religious awe into the ignorant, and at the same time acting as most effective money collectors to satisfy the greed of the priests. Herodotus thus describes them: They generally consisted of a pedestal in the shape of a narrow altar, on which a statue of a god or goddess had been fixed, the material of the whole being either wood or metal, or a combination of both. The devotees were in the habit of making their vows or

prayers before these statues, which nodded their heads and raised their arms in blessing, as the obolus, or penny, was dropped by the pious worshipper into the slot in the top of the altar. From time to time the priests went round and collected the money, deriving from this automatic and inexpensive substitute a rich and lasting revenue. The sacred character of the machine protected it against fraud and robbery.

Thus it is seen that the principle of automaticity has been in operation for many thousand years for all sorts of purposes, therefore it cannot surprise to find to-day that the phonograph has also fallen within the grasp of these ingenious catch-pennies. Indeed, the phonograph and graphophone are better adapted for automatic use than almost any of the other attractions, as they can be constructed in a compact and pleasing form and always be ready for use.

The patron starts the machine by the insertion of a coin in the slot, and the matter on the cylinder is transmitted through rubber tubes which the customer holds up to his ears. Some companies have adopted the plan of reproducing through a large horn attached to the cabinet holding the machine. This has proved quite a novelty, as the music or talking reproduced from the phonograph is thus made audible to everybody in the room, and thereby attracts increased attention to the machine.

There is also an unlimited variety of purposes which the phonograph and graphophone can thus be made to serve automatically, as they will convey sound of any kind. On the insertion of our nickel they may provide us with a classical concert, a warwhoop, a lecture on philosophy, a speech or a dialogue. We may travel in our mind around the whole world, experiencing all the sensations of motion through the medium of our ears, or we may picture to ourselves the rumble and turmoil of a great city by hearing through the automatic phonograph the echo of its pulsations. To satisfy the wants of the religiously inclined the programme may be varied on Sundays, and the phonograph be made to deliver a sermon or discourse on religious subjects, or readings from Holy Scripture.

In fact, there is practically no limit to the possibilities of an automatic phonograph or graphophone.

Fight Pictures a Failure

If the statements made by E. J. Rector be true there is a dark future—or rather no future—ahead for the kinetoscope views of the recent fistic encounter in Carson, Nev. That means a great deal to those who "paid the freight" for that photographic enterprise.

Rector avers that he is not worried about the prospect of legislation that will cripple the business of giving peephole exhibitions of the prize fight. No; that—so he says—is a minor consideration. It is the knowledge that the views taken at the ring-side are dismal failures that is giving him nightmares.

It was this Rector who secured the exclusive kinetoscope privileges of that memorable battle between Corbett and Fitzsimmons. He had visions of millions from the photographic reproduction of the encounter. He spared no expense to get a picture of every move made by the fistic kings. When Corbett gave up the ghost in that fourteenth round, there was no end of hustling among the men who were aiming the big lenses at the gory combatants. All the agony depicted in the features of the fallen prizefighter was studiously wrought out in the plates so Rector believed.

But now, alas and alack! Rector says the whole lot of snap shots look like the first efforts of a novice.

When the plates were developed every defect known to photography made its unwelcome appearance.

Rector is staying at the Gramercy Park Hotel in New York. He is there to recover from the shock these underdone and overdone plates gave him, so he says. The negatives were sent to the Edison Laboratory, in Orange, N. J., to be developed. Frank Gammon, of Raff & Gammon, managers of the vitascope, under whose direction the negatives were being developed, confirms Rector's statement. He says they are not pausing out.

Rector is not losing any sleep over what the various legislative bodies may do to "knock out" his pictorial prize fight enterprise—so he says. He won't even admit that they have him "sparring for wind," but while these negatives are being put through a course in chemistry out in Orange, the Legislatures in this State, Maine, Massachusetts, Illinois, Indiana, Wisconsin and the United States Senate for the District of Columbia have been industriously trying to fix a penalty for kinetoscope exhibitions of the fight by rounds.

But this legislative handicap does not worry Rector. In fact, he says he is laughing in his sleeve at the misguided legislators; thinks it a great joke that so much good space in statute books should be used to prohibit something that is impossible of accomplishment.

Rector says bids for right to make kinetoscopic views of the fight were received from England, France, Australia, South Africa and the Sandwich Islands, but that the defective plot has set aside all thought of making such contracts.

Legal Notices

Joseph Minsinger, who has been selling pocket kinetoscope views in the streets of New Brunswick for the last few days, was taken before Chief of Police Harding and Recorder James C. Sullivan last month, by the Rev. Dr. P. T. Hockman, pastor of the First Reformed Church, who accused Minsinger of peddling obscene pictures. The views contained scenes of boxing matches, skirt dances, a comedy team and the Seeley dinner dance of "Little Egypt."

Dr. Hockman was passing as the vender, surrounded by a crowd of boys, was describing his wares in glowing terms to his audience. Minsinger's words attracted Dr. Hockman, and he remonstrated with the man and asked him to show his license. The man showed that he had paid \$2.50 to the City Clerk.

Dr. Hockman then asked the vender to accompany him to the police station to determine the question of his right to sell such pictures. Minsinger complied with the request. Recorder Sullivan and Chief Harding found nothing objectionable in the pictures, but the man agreed to refrain from selling "Little Egypt" to boys, at the request of Dr. Hockman.

Deputy-Sheriff Loub yesterday received an attachment against the Kinetoscope Company for \$3,722 in favor of William T. Gregg, for services from June 15, 1896, to February 1, 1897, in manufacturing machines, etc., and for money spent. The Sheriff levied on some photo machines and implements in the hands of a third party, at No. 18 Spruce street. The attachment was obtained on the ground that the company is a foreign corporation organized under the laws of New Jersey in April, 1896, with a capital stock of \$50,000. Daniel Stuart was president; William P. Wheelock, vice-president, and Enoch J. Rector, treasurer.

Frank J. Nealis has been appointed receiver for the Cathoscope Electrical Company, of No. 50 Broadway, on the application of the Allen Advertising Company. It was formed to exhibit X-rays.

General News

The railroad managers are taking quite an interest in the pictures of their different express trains. The B. & O. have made an agreement with one of film companies to pay for the coloring of all the films they send out of the Royal Blue Express, of which photographs have been taken while it was running at the rate of seventy miles an hour.

The Edison Phonograph Company, of Philadelphia, on account of increase in their business, have moved to more commodious quarters at No. 23 S. Eighth Street.

E. Kulm and C. H. Webster, of the International Film Company, of New York City, are certainly up to date. They inform me that they started for Washington, D. C., to take films of the Inauguration March 2d, had them photographed March 4th, arrived home March 6th and had them ready for delivery March 8th, and as they were the first on the market the "early bird" fable was practically illustrated in their orders. They have just completed their new gallery on the roof over their factory and office and have some film novelties in preparation which will be put on the market in the near future.

We understand that at a meeting of the Board of Directors of the American Graphophone Company, held April 2d, a dividend of 1 per cent. on the common capital stock (the fourth during the current fiscal year beginning October, 1886), was declared, payable on April 20 to stockholders of record April 12 and the regular quarterly dividend on the preferred stock at the rate of 7 per cent. per annum was declared, payable May 15, 1897, to stockholders of record May 1, 1897.

The new talking machine mentioned in our last issue is called the Lyrophone and retails for \$10. It will be placed on the market the latter part of April. It is claimed that this machine is the best yet produced for the money.

I have been informed that Mr. Moore has severed his connection with the Multiplex Company and is now experimenting on a new talking machine and diaphragm.

Charles Urban, the able manager, who opened the phonograph parlor for the Michigan Electric Company, has resigned that position and is now associated with Messrs. Maguire & Bancus, of New York City.

Wm. K. Vanderbilt purchased four graphophones last month from the Columbia Phonograph Company. They were the Columbia model, five wind, antique oak cases.

Licut. Bettini claims he has perfected the automatic self adjusting micro reproducer for the home graphophone, which will give a loud, clear and natural reproduction.

We were favored last month with a visit from H. Bronse, of Ottawa, Canada, who was in this city patronizing several of our advertisers. He informs us that business is booming in his section of the country.

The Columbia Phonograph Company have secured the exclusive services of Len Spencer, who has been associated with the United States Phonograph Company for the past few years. Mr. Spencer's abilities as a phonograph artist are well known throughout the talking machine world.

One of Muskegon's inventive geniuses has evolved a talking machine. The reproduction is mellow and clear, being free from the snapping sound heard on higher priced machines and can be manufactured and sold for \$2 or \$3. A lot of 10,000 will be turned out at once.

I have seen the model of a new \$5 talking machine that promises to revolutionize the business when it is offered to the market.

Mr. Thomas W. Henry, the well-known cornet player, died suddenly of heart trouble in Boston on Saturday evening, March 13, while on his way to fill a professional engagement. Mr. Henry was widely known, and as a cornetist held high rank. He had long been a well-known player to the phonograph, commencing as early as 1878, when he played into one of the original tin-foil instruments then being exhibited at the Old South Church in Boston.

The celebrated Baldwin Cadet Band records were all taken while the band was under his direction. Mr. Henry was greatly interested in the phonograph and took as much pride in having the Cadet Band records of a superior quality as the company that recorded them. In the most brilliant and dashing selections Mr. Henry's cornet was a prominent feature and could be heard clear and sharp above the rest of the band.

Mr. Henry was born in Manchester, Eng., and his early childhood was passed in the family of a musician, who gave him the first lessons on the cornet. He came to this country when twelve years old, and was soon afterward known as the boy cornetist. Mr. Henry was never married. He was a prominent member of the B. P. O. Elks, by whom he was buried.

Our Foreign Correspondence

SYDNEY, N. S. W., February 15, 1897.

DEAR SIR: Some one was kind enough to mail the writer a copy of your journal, which was read with avidity and thoroughly enjoyed. If you see fit to send me over a couple of dozen copies of the journal I will take pleasure in placing them where they will do you good and your advertisers as well. The writer was the first person to exhibit Edison's Phonograph to the Australian public in 1878 on his first visit to this country, and then again he gave the first public exhibition in New South Wales in 1889 and 1890 of his perfected machine, antedating Prof. Douglas Archibald by several weeks. Have delivered about nine hundred lectures in Australia and elsewhere on "Edison, His Life and His Inventions," illustrated with oxy-hydrogen light and views, and the best of American productions in records. I have made Casey, Pat Brady, Gaskin, Quinn, Len Spencer and At Lee, as well as hosts of others known in all of Australasia. Have even sent them to New Caladonia, Fiji, New Hebrides and places where they little dreamed of going. Now they can be heard daily at the parlors in this part of the world. Now everything is the new order of things, known here as "animated photography." We have had the vitascope, the kinetograph and five or six kinds of cinematographs. The X-Ray machines are here, as well as the new home phonograph, gramophones, and graphophones. I would be very pleased to hear from any one contemplating a visit to this part of the world. If they will drop a line and let me know what they would like to bring, I will write and tell them honestly if it will pay them or not to come to this part of the globe.

I am an American, born and brought up in the United States of America, and proud to say that

I am a New England Yankee, from good old Pilgrim fathers' stock, and will do all I can to promote the welfare of anything genuine in the amusement line. Now, if you want a letter monthly from this part of the earth let it be made known to Yours faithfully,
DR. W. H. L.

New Corporations

A New Industry Likely to Be Started in Canton, Ohio

Among the recent arrivals in Canton, are Mr. Norman C. Raff, formerly of Canton, and Frank R. Gammon. Mr. Gammon is president and Mr. Raff secretary and treasurer of the Vitascope Company, of New York. They are considering the advantages offered by that city for the establishment of a film manufacturing plant.

These films are the strips of pictures photographed from life on celluloid and reproduced, life-size, on a screen or canvass, with every motion true to life, by means of the vitascope and other similar machines.

Their manufacture has become an important industry, and the market the whole world, as the superiority of American films is generally conceded in all countries.

If located this will add another industry to the large number already located there, and every encouragement should be offered by their citizens to secure it. These gentlemen recognize the advantages presented by Canton in the way of transportation, central location, moderate cost of ground, labor, rents, etc., as compared with larger cities, and are disposed to locate there, but have not yet positively determined the question.

One important benefit which Canton would derive from the location of this plant there would be the expensive advertising this section would receive through the exhibition of local views and scenes, not only throughout this country but the whole world, and in which every detail, act and motion is faithfully reproduced by means of that wonderful machine—the vitascope—which has already become one of the most popular features of the amusement world, although yet in its infancy.

We understand that substantial inducements have already been offered to secure the location of this industry. We have no doubt that the Board of Trade will extend every possible encouragement to the Vitascope Company, and we can assure them of a most cordial and hearty welcome from our citizens generally.

A company was formed, incorporating itself as the North American Phonograph Company, to which Mr. Edison conceded the rights to handle the phonograph in the United States and Canada. This company, with headquarters in New York, established a number of sub-companies in different parts of the country, but the machine proved a failure for practical use. It was found to be too complicated to be used for business purposes, as had been originally intended by the company.

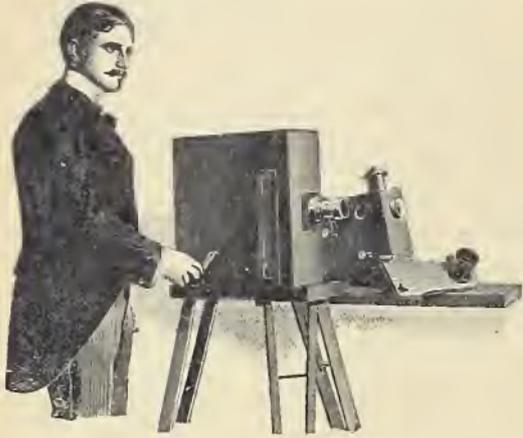
Mr. Edison, therefore, by continued efforts and experiments made improvements on this machine by dispensing with all complicated and troublesome attachments, and built a simple but practical machine that was a success. These machines were then put on the market in great quantities and have remained practically of the same design up to the present time.

The Verescope Company, of New York City, was incorporated with a capital stock of \$5,000. Directors: Frank C. Meehan, Robert I. Maisten and Sheldon B. Cable, of New York.

"Picture Projecting" Devices

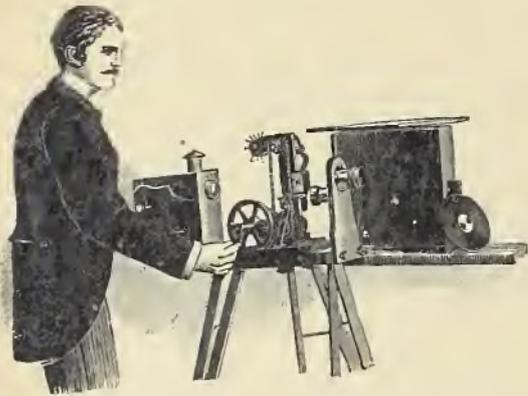
The Biopticon

This new apparatus is one of the latest picture projecting machines, and is especially adapted for public entertainments.



The biopticon as a camera makes negatives, full of minute detail, and capable of the highest magnification. It is small, handy and portable, and is convenient for tourists. It measures 15 inches in height, and weighs 27 pounds. The bobbins are made to carry 500 feet of film, which is sufficient to take an animated picture of four minutes' duration at the rate of 30 per second. These bobbins may be adapted to carry a much larger quantity if desired.

The biopticon used for projection is operated either with the hand or by a motor with smoothness and comparatively without noise.



The pictures succeed each other at a speed of from 15 to 50 per second as desired, but the best results are obtained when the pictures are projected at about the same as the rate at which the exposures were made upon the the negative.

The projections are quite sharp and brilliant.

The price of the biopticon, including Dallmeyer lens, hand-regulating arc lamp and tripod, which is used for both photographing and projection is \$325. They can also be purchased without attachment for photographing.

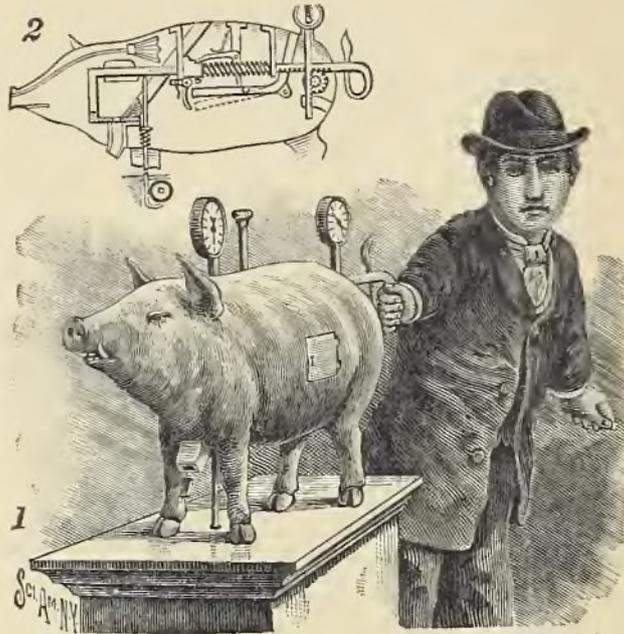
Slot Machines

Automatic Strength Tester and Vending Machine

The curious and novel nickel-in-the-slot machine shown in the accompanying illustration has recently been patented by Mr. John Milo, of Williamsbridge, New York City. As will be seen from the sectional view, the mechanism is inclosed in a case formed to represent some kind of animal, and it is so arranged that, by placing the purchase coin in a slot and applying strength in the form of a pull or a blow to the proper handle, the force applied will be measured upon a dial and the

article of purchase will be automatically delivered to the purchaser.

A horizontal bar extending longitudinally through the body terminates in a handle which is shaped to represent the tail of the animal. This is kept in its normal position by a coil spring. At its front end it is bent down and back to form a flat, horizontal plate, in which is cut a hole large enough to receive a package of the articles to be sold. This plate slides horizontally beneath the



end of an inclined tube, which is filled with a supply of these packages, and when the bar is drawn forward, the hole is brought beneath the end of the tube and receives one of the articles therefrom. Upon being released, the bar is drawn back by the coil spring and carries the article over an outlet tube, through which it falls and is delivered to the purchaser.

The purchase coin falls into an elbow tube, which is so pivoted that the weight of the coin causes it to rock forward and release a catch which prevents the horizontal bar from being moved, except when the coin is inserted. After releasing the catch, the coin rolls out of the tube into the body of the figure, from which it can be recovered by unlocking a door placed conveniently in the side of the machine. At the rear end of the bar is formed a suitable horizontal rack, whose teeth mesh with a pinion which, in its turn, serves to operate a vertical rack. The latter rack terminates in a rod, which, extending through the back of the animal, carries a pointer which indicates on a graduated scale the force of the pull.

At the forward end of the horizontal bar are attached two cams, one above and the other below. The first serves to compress a small bellows, which produces an imitation of the animal's cry. The lower cam depresses a rod which starts a music box concealed in the base of the machine.

The second indicator scale and the vertical rod shown projecting from between the shoulders of the animal are for registering the force of a blow. The internal mechanism is similar to that already described, the article being automatically presented to the purchaser as before.—*Scientific American*.

The Automatic Banjo

In reply to numerous inquiries we give a full description of the automatic banjo which is about to be placed upon the market by the American Automatic Banjo Co., of New York City.

The banjo is enclosed in a glass case, underneath which is the cabinet which contains the motive power. The instrument is a handsome one, of excellent tone. It has four wire strings, each of which is covered at every fret by a brass button. A nickel dropped into a slot at the foot of the case sets the mechanism going. Instantly four little

arms, two from each side, reach across the banjo head and begin to engage, now separately, now altogether, with the strings. These arms, or "pickers," are hook-shaped, the hook being formed by the insertion in rings at the end of each by wedge-shaped steel points, which are adjustable so as to gain exactly the amount of friction desired.

The pickers not only bring sound from the strings by sawing across them, but they pluck the string as well, in the same manner as a banjo player uses his fingers, striking the string and then raising the finger so as to bring out the tone, and, at the same time, prepare for the next blow. This operation is performed, when rendered necessary by the character of the music, with really wonderful rapidity, and always with the greatest distinctness, the execution with which the difficult passages are played far surpassing that of most human performers on the banjo.

While the pickers are at work the buttons which cover the strings along each fret are not idle. Their duty is to press down the strings either singly or in groups of four, at the proper time and place, forming pleasing and correct harmonies, and aiding in producing a banjo concert of most attractive character.

To see this banjo, which apparently plays of itself, is truly interesting, especially as the music included in the repertoire of the machine is almost inexhaustible, and includes everything popular, from "The Irish Washerwoman," up to the "El Capitan" march. Some of the most difficult and taking numbers performed by the automatic banjo are: The "Arkansaw Traveler," "Patrol Comique," "Limited Express Galop," "Darkey's Dream" and "Rosie O'Grady."

The automatic banjo will not be sold, but rented as a nickel-in-the-slot machine exclusively.

Penny-in-the-Slot Electric Light Meters

Electric light meters, with penny-in-the-slot attachment promise to become popular in some places. A London company supplies current for an eight-candle power incandescent light six hours for a penny dropped into the box, and allows the customer to take his six hours' light at once or in small daily installments, as he chooses to turn his switch.

Victory for Anti-Slot Machine

Victory rests with the anti-slot 'phone disputants in Chicago, but as a matter of fact, the fruits of victory amount to little. The sub-committee of the Common Council appointed to investigate the question reported in favor of compelling the company to put in the old style instruments where the subscriber so desired. The Judiciary Committee accepted the report and will recommend its passage by the Council.

The controversy had pretty well died out, and not much change is anticipated. As a prominent "anti" said in reference to the matter, "It doesn't matter much, anyway. Nine-tenths of the druggists want their 'phones free and are satisfied with the existing condition. Again, the telephone company has acted fairly of late. All notices of druggists' meeting and even the work of the Cook County Business Men's Association have been without toll by securing an order from the manager."

The members of the Sandusky, O., City Council recently voted to allow the nickel-in-the-slot machine to continue in full sway in that city,

'Graphs, 'Phones and 'Scopes

The Spectroscope

The largest spectroscope in the world has just been completed by Prof. John A. Brashear, the famous instrument maker of Allegheny, Pa. It has been made especially for Dr. Hans Hauswaldt, a wealthy scientist of Magdeburg, Germany, where it will be used in physical research, and it is expected that many important discoveries will be made with its aid. The two most powerful spectroscopes now in use are at the Royal University, of Dublin, and the McGill University, of Toronto, Canada. These instruments were also made by Professor Brashear.

The powerful concave grating instrument is 21 feet long, and will require a room about 28 feet square in which to operate it. It is to be used for physical investigations of a very high character, and the design and construction were settled upon by Professor Brashear and Dr. H. Kayser, of the University of Bonn.

It is also very probable that Dr. Hauswaldt will have other powerful instruments of research made by Professor Brashear, as correspondence is now going on in regard to great physical and astronomical instruments that are to be placed in the new laboratory now being equipped by him in Magdeburg. Dr. Hauswaldt has gained considerable fame in Germany by his experiments, and he is sparing nothing in the equipment of his laboratory, which, when complete, will be one of the finest in Europe, and will far excel any in this country.

The grating to be used on the powerful spectroscope has a six-inch aperture, and is ruled with 110,000 lines. So accurately are these lines ruled that there is no difference any greater than three-millionths of an inch between any of them. This instrument is so powerful that where an ordinary spectroscope would show from 100 to 200 lines belonging to the spectrum of iron, it will reveal more than 2,000. It used to be considered that a spectroscope that could show the sodium lines double was one of great power. The great instrument to be sent to Germany not only shows each of these lines double, but with the sun low in the meridian as many as fifteen lines may be seen between the sodium lines.

The new spectroscope has its greatest power, however, in the way of photography. The spectrum of the sun has been photographed to a length of over sixty feet, literally crowded with lines from one end to the other. It is so arranged that no matter what part of the spectrum it is desired to photograph the photographic plate is always in focus for every part of the spectrum.

"This large instrument is also valuable in making comparisons of anything that may be burning in the sun," said Professor Brashear, in speaking of his great work. "Suppose, for instance, we wish to determine if the metal calcium is in a state of gas in the light that is coming from the sun. We have only to turn the sunlight into the slit of this great spectroscope and photograph in the center of our plate the centre of the sun.

"A bar is now placed over this part of the plate which has received the impression of the solar spectrum, and now we turn on an electric light, in which we have placed a small piece of pure calcium. In a very brief time the spectrum of the calcium is photographed above and below the spectrum that came from the sun. The plate is now developed, and here we have a picture of the solar spectrum, running as a narrow strip between the photograph of the metal we have taken. We can see at once the coincidence of the lines of the metal with any lines that may be in the sun. If

the lines are in absolute coincidence we may infer from the law of probabilities, which increases as the lines increase, that the metal we have burned in our electric arc is burning in the great fire of the sun.

"Many hundreds of these photographs have been taken, and we are now almost as certain of the elements that are burning in our great luminary as those that we burn in the furnace of the metallurgists. So it is with the gases and, indeed, all the chemical elements. Yet, strange to say, while we here on earth recognize oxygen as the great supporter of combustion, the most careful researches with the spectroscope have failed to show the existence of oxygen in the sun. I have in my library an elaborate little manual giving Professor Draper's scientific reasons and proofs that oxygen is burning in the sun, but it has been strongly proved the opposite.

"Extraordinary care has been taken to make the instrument as absolutely perfect as is possible for human hands. The German physicists are the most exacting scientists in the world, and their tests of the great spectroscope will be most rigorous. Dr. Hauswaldt has established one of the finest laboratories of its kind in the world, and he has associated with him in his work the best German physicists of the day. He intends, I understand, to devote his fortune and the rest of his days in making advanced researches. His laboratory now far excels those in this country, and the instruments he is talking of adding to the equipment will make it even more admirable. I look for important discoveries in physical science from the famous little town. The circumstances and surroundings certainly favor it.

"It has been my great regret that I have been unable to photograph the instrument just made. I have tried, but it is so large that some parts of it is always placed out of focus in an exaggerated fashion. A camera would have to be placed fifty feet away to get any results at all, and then they would be very unsatisfactory. I have always had to be satisfied with a mere recollection of the instruments made."

The Microphonograph

A brief description of an apparatus to magnify the voice just as a lens magnifies objects to the eye; (the analogy does not seem to be a good one, as the magnification seems to be more like that produced by a telegraph relay); it is intended to be used for the deaf and for the study of feeble sounds given out by healthy and diseased organs of the body. The register appears to be a modified phonograph, the diaphragm of which is vibrated by small electro-magnets, the currents for which are obtained from a microphone; the repeater is a somewhat similar instrument with a microphone attached to the membrane; the current for this is obtained from one to sixty cells and thence passes to a telephone; thus the intensity depends on the amount of current passing. The education of deaf mutes by means of this instrument is now being carried on; it is admirably adapted for studying the action of the heart; a ten months' treatment of a young deaf mute has shown that the auditory nerves and auditory apparatus have been greatly stimulated to activity by the use of this apparatus, the number of cells required having been reduced from twenty-two to two during that time. A large apparatus of this kind is being constructed, and is intended to make the voice heard by 10,000 persons; it is intended for the Paris exhibition of 1900.

The Phonoplex

The operation of the phonoplex is very simple. It serves the purpose of giving any company that uses the instruments an additional telegraph line

without being put to the expense of constructing one. The duplex and the quadruplex now in use by the telegraph companies separates the currents that travel along the wire, but they cannot be used except on trunk lines. If a way wire—that is a wire that is used at the various stations along a telegraph line—is wanted for duplexing or quadruplexing all the offices along the line except the terminal points at which the duplex and quadruplex instruments are located, must cut out, that is, must disconnect their instrument from the wire in order that it may be serviceable for duplex or quadruplex use, but with the phonoplex all this is done away with. The way stations can keep their instruments cut in, can telegraph to all or any of the stations, and yet at the same time the wire they are using can be used for entirely distinct service by the phonoplex instrument. What is more, the phonoplex can be used at not only the terminal stations, but at each and every one of the way stations.

A Kitchen Telephone Service

A novelty in the extension of the telephone, introduced in San Francisco, may be called a kitchen telephone service. For fifty cents per month the local company will supply an instrument by which orders may be given to the butcher, grocer or other tradesman, but through which no return answer can be received. A further concession is to allow communication with one other subscriber, but any other communication must be paid at the rate of five cents per call. The limit upon the service makes it improbable that more than two calls a day will be made, and these can be provided at the low rate. It is inferred that the service is introduced for the purpose of educating the householder as to the advantage and convenience of the telephone, with the expectation that the trial will lead to a demand for the unlimited service at the higher rate.

A Horseless Carriage

That which attracted more attention than anything else in Galveston, Texas, last month was a horseless carriage. It traveled over the paved streets, wound in and out among vehicles and street cars and otherwise did the same as any other carriage with horseflesh in the shafts guided by a skillful driver. The lever of the vehicle was handled by Mr. J. Frank Pickering, traveling advertising manager for a Chicago firm. Mr. Pickering arrived in Galveston with two cars, the sides of which were covered with words telling the merits of Mr. Pickering's house. One of these cars is filled with catalogues, posters, paint, signs, etc., and the other is used for an office and living apartments of the six men who travel with Mr. Pickering. In this car are an organ, a phonograph and various other appliances for amusing people in small towns in which the cars are side-tracked while the men decorate walls and buildings.

In the bill car are also the electric apparatus which charges the motors in the carriage and which furnishes the light for the cars. The vehicle is not bulky or cumbersome and its pneumatic tires make riding over the uneven pavement as pleasant and easy as though the vehicle was gliding along the beach. In appearance it looks very much like a drag or brake.

During an exhibition of the vitascope in Elizabeth, N. J., last week considerable excitement prevailed owing to a threatened fire, caused, it is alleged, through the thoughtlessness of the exhibitor. It is said that he used benzine instead of machine oil on the quickly revolving parts, and the great friction caused it to ignite.

A Home-Made Kinetoscope

Although the kinetoscope as invented by Mr. Edison is a wonderful instrument, yet a fairly good imitation of it may be made by any boy possessing a little ingenuity. It is not to be supposed that the perfected machine can be constructed by an amateur. That would be impossible without special photographic apparatus, besides being an infringement on the kinetoscope patents. But as the commercial machine of to-day is nothing more than a development of some old-time optical toys, there is nothing to prevent any person constructing some very amusing instruments which will be like the kinetoscope in effect if not in name.

The simplest of all is the thaumatrope. It consists simply of a circle of cardboard attached to which are two pieces of cord, and on each side of which is painted or drawn half a picture. The object is to twirl the cardboard by means of the strings and thus cause the two drawings to blend so as to form one picture. For instance, if a bird is drawn on one side of the card and the cage on the other, the bird will appear to be in the cage when the card is twirled. In order to have the bird appear upright in the cage, the two pictures must be drawn upside down to each other, as it were. That is, the top of the cage must point toward one edge of the card and the top of the bird toward the opposite edge. Any number of pictures may be drawn. A juggler may be drawn on one side and a number of balls on the other. He will appear to juggle the balls when the card is twirled. If an equilibrist is drawn on one side and a plate on the other, he will appear to be balancing the plate if the latter is properly placed. A man and a horse may be used, or a cat and a dog having a fight, or a man and a woman dancing, and so on with infinite variety.

Kinetoscope cards are now being sold by fakirs on the streets of large cities. Each card has a figure drawn upon it. Every card shows the same figure, but each in a different position. The various positions bear a definite relation to one another, so that when the cards are flipped rapidly past the eye the figures on them appear to be moving. The cards are held in one hand and bent double with the other, then one after another allowed to spring back to their original position. If, for instance, a dancer is shown, the arms and legs must have a progressive action; that is, if the arm is to be shown in the act of being raised, each successive picture must show it elevated a trifle higher than the last. So with every part of the body; each succeeding card showing the action a little more advanced.

A zoetrope can be made by combining the posthumous uses of a hatbox with a little artistic talent. An old hatbox is arranged on a pivot so that it will spin easily. A series of slits or openings one-quarter inch wide by three inches long and about two inches apart, must be cut around the upper sides of the box. It is through these windows one must gaze to get a proper effect from what is going on within. The figures are drawn precisely as they were on the cards mentioned above, only they must be drawn side by side on a long strip of paper. This paper is placed around the lower inside wall of the hatbox. If properly drawn, some very life-like actions may be witnessed when the box is rapidly revolved on its pivot.

A modification of the zoetrope may be made by cutting out a circular piece of cardboard, fixing it on a pivot and drawing the figures to be shown in a progressive ring around the edge of the circle. The pictures should be about an inch deep and occupy the outside quarter of the space between

the center and the edge of the disc. Slits like those in the hatbox should be cut from the base of each picture to within a half inch of the center. The affair must be revolved on a pivot (a common pin stuck in a clothespin will do) in front of a mirror, and the spectator must look through the windows that have been cut in the disc. Horses may be made to run, trot or gallop, men made to walk, dogs made to chase cats, ladies to dance and many other diversive sights to be witnessed in a well-constructed instrument of the kind.

Reynaud's zoetrope is a trifle more ambitious than any of the preceding. First obtain or make a pyramid of wood the height of which is equal to one side of its base. Each side of this pyramid must be covered with a mirror cut to fit it. A handle should be fitted tightly into a hole in the bottom of the pyramid. A metal rod or spike must be driven into the apex or point of the pyramid. This completes the stationary part of the apparatus. Now for the moving figures. They are to be four in number, and are to be painted or drawn on a circular piece of cardboard or tin. This disc must have a hole cut in its center, so that it may be spun on the rod which projects from the point of the pyramid. Let the disc be divided into four parts. This can be quickly done by drawing the diameters of the disc upon it. In each of the quarters so formed draw the picture to be shown. As there are only four versions of it, each one will have to be more radically different than where a number are used, as in the zoetropes. The pictures must be progressive, but the whole action must be completed in the four drawings.

It is advisable, therefore, to choose some simple action as, for instance, a juggler tossing balls. His body will in every case occupy the same position. Only his arms need be changed. The operation of one of them will suffice for a description as to how to proceed. The right arm in the first picture should be extended downward, that is, as low as he would naturally put it. The next picture should show it raised half way up in the air. The next should show it raised all the way up. The fourth shows it half way down again. As the disc is turning we have now got back to the first, which shows it lowered all the way down again, and so on progressively as the disc goes around. This general principle should be adhered to throughout the series. The pictures should be drawn with the tops toward the center of the disc. When the latter is placed face downward on the pivot and revolved, the moving picture will appear to stand upright in the glass on all sides of the pyramid.

A simple form of a mechanical thaumatrope can be made in the following manner: The edges of four wood boards or cardboards should be glued together so that when looked down upon from above their edges will form a cross. To be plainer they should be arranged in the same manner as the diameter of a square. They should be pivoted so as to revolve easily. In the four right angles formed by the sides of the boards should be painted or drawn pictures of the same nature as those in the pyramid described above. As the number of pictures are the same, the same general directions should be observed in drawing them. The effect is very lifelike when the affair is revolved, and much pleasure and an evening's entertainment may be derived from its construction and operation.

The reference to the Edison kinetoscope, made above, will be understood when it is pointed out that this wonderful machine is merely the combination of the principle involved in the above optical toys, with photography. Mr. Edison constructed a machine which would take photographs of moving objects at the rate of forty a second. These photographs are attached in a long string to a tape. The string of photographs is placed on spindles or reels and made to run past the end of a tube at the rate of forty a second or the rate at which they were taken. The result, when a person gazes through the tube, is that the figures in the pictures perform the same actions they were going through when the pictures were taken.

Popular Science

Perpetual Motion

Probably no problem has more money, more labor and more brain power been expended than on the problem of perpetual motion. In every age and in every country the cleverest of men have exercised their genius on its solution, and although they did not find what they looked for, the search after perpetual motion has led to many valuable discoveries and inventions. Latterly, Mr. F. Charquette, of Bridgeport, Conn., claims to have practically solved the problem, and we have had an opportunity of seeing for ourselves how he has done so.

Different from most former inventors, he has not contented himself with a model or experimental machine, but has built an enormous machine and already uses the same to good practical purpose. His idea is eminently simple and his execution is equal to it. There seems to be no reason why this machine, once started, should not keep on moving until it is absolutely worn out.

The following is a brief description of the machine and its workings:

A huge horizontal wheel with a diameter of eighty-two feet, has been built of latticed steel girders, and is provided with ten spokes, on the ends of which are journaled three vertical wheels nine inches in diameter and weighing one and one-half ton each.

Along the periphery of the horizontal wheel are arranged one hundred air compressors, joined in couples by rocker levers, which work the pistons in the air cylinders, and which are depressed by the inner and outer vertical wheel as the horizontal wheel revolves, the center wheel running over a horizontal track. The air cylinders are 12x16 inches in diameter, and all have a stroke of 12 inches. An air tank carrying a working pressure of 100 pounds to the square inch is provided, and the air is led by pipes to this tank from the compressors. The large wheel is revolved at the rate of ten revolutions per minute by the two 70-horse power engines, and the solid 4½ ton wheels in the periphery of the large horizontal wheel, continually acting on the rocker arms, do the rest.

It goes without saying that such air pressure constantly reacting upon itself must create a tremendous power. The result is 2,500 horse power with only 140 horse power to start with. No such development of power from such small initial force has ever been known before. And Mr. Charquette is probably correct when he holds that the machine once started by a crank and pinion or otherwise will practically keep going by its own created power until it breaks down or wears out, and yet have a large surplus power to move machinery of any kind. Although this is not perpetual motion, it comes as close to it as anything mortal can, and the machine in itself is a perfect mechanical wonder.

New Pocket Telephone

A pocket telephone for policemen is one of the recent inventions. Over in England it is in general use and has been found very satisfactory. The telephone consists of a combined mouthpiece and earpiece with about a foot or more of wire attached, an affixing pin and a small key. This apparatus is to be used by the officers in connecting with the fire alarms placed at various parts of a city.

Instead of breaking the pane of glass in case of a fire occurring in the neighborhood, as an ordinary individual would have to do, the policeman opens the door with his key, places the affixing pin in a socket provided for it and is in direct communication with the fire department.

Letters

This column is open to any of our patrons who have a complaint to make, a grievance to ventilate, information to give, or a subject of general interest to discuss appertaining to Sound Producing Machines, Picture Projecting Devices, Slot Machines, Amusement Inventions or Scientific Novelties in general.

PHONOSCOPE PUBLISHING CO.

GENTLEMEN—I am in receipt of your sample copy as per my request and send you enclosed \$1 bill in payment of one year's subscription beginning with the first number. I am pleased to see one phonograph journal that is not issued in the interest of one concern, but which has for its object the news for the entire trade.

While my main business is the selling of typewriters, I sell a good many graphophones for commercial use in connection with the machines and also a good many of the cheaper talking machines for musical purposes, and a large number of records. I have a great deal of trouble getting uniform good, loud originals, as I find a tendency even on the part of the best and most reputable concerns to work off all the poor and duplicate records they can with each order as originals. Very truly yours, M. E. B.

THE PHONOSCOPE PUBLISHING CO.:

GENTS—I wish to ask you a question: Do you know anything about the dealings of — — of your city advertised in THE PHONOSCOPE? The reason I ask this question is because someone gave me a copy of your paper in which the firm mentioned was advertised, and about the latter part of February I sent them an order enclosing N. Y. Draft, and I received a card from them acknowledging the receipt of my order and stating that the records would go forward that day (which was March 1). I doubt the honesty of — —, and if they keep my money and don't send the records I shall always consider it a most dastardly robbery, and the reason I report it to you is to keep them from robbing others. I have always been interested in the phonograph business and have often had duplicates sent, but never been robbed to a finish before.

Yours respectfully, T. O'S.

GENTLEMEN—I read your issue of THE PHONOSCOPE and am very much pleased with it. I like to keep posted in regard to new music and the phonograph business, in which I find you are up to date. Enclosed you will find my subscription. Respectfully yours, E. R., Dayton, O.

Our Correspondents

HARTFORD, CONN.—Another of the inventions for throwing moving pictures upon the screen has reached us. It is called the centographe and it makes the same claim upon popularity that do the cinematographe and the biograph, all of which have been seen here recently. All of these machines are wonderful in the effects produced, showing objects in life-like and natural motion. The new machine has arrived here so suddenly that the public was not prepared for its coming, and consequently the audiences to see it were small. But they will surely be larger when people learn what may be seen at these exhibitions. They are worth going far to see. The audience was so small last night that only three pictures were shown, simply to give an idea of what the centographe is capable of doing, and those present were then given the option of receiving their money back or taking tickets for a future performance. All took tickets, saying they wanted to see all the pictures. This decision on their part shows how much the pictures were appreciated. COURANT.

X-Ray Items

The X-Ray in Law

The X-ray is becoming of more account than its discoverer knew. It recently appeared as a witness in a suit in New York for \$20,000 damages for malpractice, and the facts as they were developed on the trial fully justified the sufferer in making his appeal in court. A young man was shot in the hand and a physician pretended to remove the bullet. Indeed, he procured a bullet and carried it around to prove that he had performed a successful operation. As the old wound continued troublesome the sufferer went to another physician who said that he would put the hand under the Crookes tube and see what was the matter. To this the older surgeon objected, declaring that the X-ray was a humbug, that no reputable physician used it, and that sort of thing; and he nearly persuaded the patient to refuse to lend his hand to the experiment. But the younger physician turned on the light and the shadowgraph was made, showing the bullet just where it had lodged, in a joint of the thumb. The older physician was a quack. A second operation was performed and this time the bullet was removed. The same young physician has secured other pictures showing outrageous malpractice on the part of "natural bone setters" and other such people. If tests like this could be made in every community it is very probable that certain men who are practicing without proper warrant of any competent medical college would leave the delicate branch of surgery alone, however much they might continue to dose their victims with patent medicines and mysterious decoctions of which the best that can be said is that while they never cure they do not always kill.

Hope for Bald Heads

Discoveries in connection with the X-ray are hustling right along. First came the X-ray itself. Then the experimenters with it found that it was injurious to the hair after persistent exposure. Now it is discovered that a moderate exposure stimulates the growth of the hair, while the heads that were made bald are being covered with a thicker growth of new hair. So it appears there is hope, after all, for the incorrigible bald head.

H. D. Hawks, of Tarrytown, says that hair began to grow in his case in about nine weeks, from the time it fell out, and that it came in thicker than it was before. He thinks that working around the X-ray tubes encourages the growth of hair if the action is not prolonged too much, and this beneficial result he says may be due to the presence of electricity under high tension, referring to the similar effect of static electricity. The action of the ray upon the skin takes longer to dissipate, but gradually the effect disappears. Mr. Hawks ventures the hope that the use of the X-ray may be valuable in some skin diseases.

He Could See Light

The X-ray has given a glimmer of light to eyes that had been sightless for ten years. Mr. J. Martin, who, by submitting to experiments as a substitute for Charles Broadway Rouss, has become known as "Mr. Rouss's man." Martin first presented himself to Mr. Rouss eight months ago. He was formerly a druggist, but in 1887 was stricken with atrophy of the optic nerves and became totally blind. Famous oculists treated him from time to time but all agreed that his case was hopeless, that he would never see the light again. Hearing that Mr. Rouss was to submit to a hundred volts of electricity in the hope he might restore his sight, Martin called on the merchant last April with this proposition: "If the shock

kills me it would kill you; if it cures me it will cure you. Let me submit to the experiment in your stead."

Mr. Rouss assured the volunteer that he had no intention of undertaking any such perilous risk, nor would he consent to anybody undergoing it for him, but he was of a mind to try another expedient which had been suggested to him and here let Martin take his place. Martin has since submitted to a succession of tests, perhaps a hundred. Two attendants led him to the office of Dr. David R. Edson.

The fluroscope was placed at his eyes and the X-ray turned on. There was an instant's vicious snapping of the current, then absolute stillness, as all in the room strained to watch the face of the man in front of the electric glare. At length Dr. Edson asked: "Do you see anything?"

"No," answered Martin. His lips scarcely framed the reply when there rang from him: "I can see—I can see light," and the joy in the tone moved all who heard it. Dr. Edson at once turned off the ray. Martin was deeply moved at the gleam which had penetrated his long darkness and he was led to a seat to compose himself before the experiment was continued. Dr. Edson questioned him about the effect of the ray, but the blind man only repeated that he had seen light.

Again the fluroscope was placed at his eyes. This time he received the impression of light more quickly and when he had revelled in it for a minute, the sphere of metal was passed in front of the fluroscope. Martin detected the movement instantly. "It is a shadow," he said, "it is like the sun going behind a cloud."

Answers to Correspondence

All questions pertaining to Talking Machines, Picture-Projecting Inventions, Automatic Coin-in-Slot devices, Amusement Inventions, etc., will be cheerfully and fully answered in this column. Inquiries for this department should be addressed, Information Department, The Phonoscope, 4 East Fourteenth Street, New York, U. S. A. ❀ ❀ ❀ ❀ ❀

J. B. BERLIN—The word Phonograph is derived from two Greek words: Grapho, I write, and Phone, a sound. It signifies a machine which writes down sound for future reproduction.

The word Graphophone is derived from the same Greek words as the word Phonograph and signifies a machine in which sound is recorded and reproduced.

The word Gramophone is derived from the Greek words Gramma, writing, and Phone, a sound, and signifies literally a machine which produces sound from writing. Its composition seems to indicate that the machine which it defines is not intended to record sound, but simply to reproduce sound from writing.

Vitascope is a hybrid word, being composed of the Latin word Vita, life, and the Greek word scopein, to see. It signifies seeing life and denotes a machine used to reproduce pictures full of action and life.

The word Phonoscope is derived from two Greek words: Phone, a sound, and Scopeo, I see, I observe, I watch. It thus combines the ideas of watchfulness, observation and hearing, and as we intend to be watchful and observant in all that pertains to scientific and amusement novelties in general, and to the mechanical reproduction of sound and sight in particular, we have adopted the word PHONOSCOPE as an admirable title to this monthly journal.

New Films for "Screen" Machines

UMBRELLA BRIGADE. Incidents of the great parade on Pennsylvania Avenue, showing a marching Club carrying red, white and blue umbrellas, which they revolve while marching, giving fine pin-wheel effects. This feature of the parade discloses a large American flag which, unfurling in the breeze, adds to the spirit of the occasion.

BATTERY A, LIGHT ARTILLERY, U. S. ARMY. Shows a battalion of light artillery in rapid movement. Figures well in the background, and the pictures filled with men, horses, cannon and ammunition carriages. Effective perspective and stirring subject, full of action and martial spirit.

GRAND BOULEVARD SCENE, PARIS.

TRAMWAY STATION, ST. PETERSBURG.

**CORONATION OF THE CZAR OF RUSSIA.
RUE ROYAL, PARIS.**

MARKET STREET SCENE, PARIS.

HAVING A DRINK. This is one of the latest ideas in photography and is called reversible photography. When shown on the screen all actions are reversed; beer comes back in bottles; crackers return to the plate; chairs stand up etc., etc. Very comical.

CORBETT-COURTNEY FIGHT.

LEONARD-CUSHING FIGHT.

LOVE SCENE. Showing lovers kissing and hugging. Mother appears on the scene and drives lover away. She sits down on bench and reprimands her daughter, when mischievous boy tips over the settee. Both fall over.

BOWERY STREET SCENE.

MCKINLEY AND CLEVELAND. Going to the Capitol. This film is one of much interest as it shows the accident of the day. The picture opens with Troop A, of the Black Horse Cavalry of Cleveland, Ohio, the personal guard of the president-elect. The troopers are mounted on prancing horses and make an extraordinary fine appearance. Following this body guard comes the four-horse barouche occupied by President Cleveland and Major McKinley. At this point in the scene, one of the rear horses, attached to the President's carriage, slipped and fell on the pavement, the accident happening immediately in front of the camera. The carriage stops, mounted police gallop to the rescue and thus enabled the operator to get the only effective photograph of the retiring and incoming Presidents that the great parade afforded. Extremely clear, with strong light effects and is life-size throughout.

GATTLING ARTILLERY.

71ST REGIMENT, N. G. S. N. Y.

WASH-DAY SCENE. This scene shows washing and hanging out clothes. Mischievous boy tips over the tub. Very funny and laughable.

VICE-PRESIDENT HOBART'S ESCORT. The Essex troop of Newark, N. J., mounted on coal black chargers, a fine body of men and horses, as they appeared while acting as escort to the new Vice-President. Film of good quality with clear figures and good action.

THE OLD GERMAN MILL, in which one of the millers thrusts a woman into the hopper of the mill and she soon emerges from beneath it, having apparently been run through the machine.

MOUNTED BAND.

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 Hot Time In the Old Town To-night. Myers
Armor do Madre. Mexican Trio
Arrah Go On. Hunting
At the Fair, Galop. Columbia Orchestra
Banjo Duets. Diamond and Curry
Bonny Doone. Eolian Trio
Casey as Auctioneer. Hunting
Come Play With Me. Quinn
Come, Send Around the Wine. Myers
Crappy Dan. Spencer
Dancing in the Dark. Sousa
Dancing in the Sunlight (Xylophone). Lowe
Dancing on the Housetops. Issler
Dear Little Jappy, Jap, Jappy. Quinn
Dio Possente, from opera Faust
Departure from the Mountains. Schweinfest
Don't Tell Her that You Love Her. Gaskin
Down in Hogan's Alley. Quinn
El Capitan March Song. Quinn
El Curru. Mexican Trio
Eli Green's Cake Walk. Quinn
Emmett's Lullaby. Quartette
Erin, O Erin. Myers
Eve and Her Pal Adam (Banjo accompaniment). Paine
Fly Song (Chauncey Olcott's). Myers
From the Hour the Pledge is Given. Myers
Girl With the Naughty Wink. Quinn
Grace O'Moore. Gaskin
Handicap Rider 167. Quinn
Handicap March. Diamond and Curry
Hiram Wilkins on Superstition. Hunting
Hiram Wilkins's Girl Hannah. Hunting
Hot Stuff Patrol (Banjo). Ossman
I Love One Love. Eolian Trio
Isn't It Nice to be in Love. Quinn
I Want Yer, Ma Honey (English). Mlle. Yvette Guilbert
I Want Yer, Ma Honey (French). Mlle. Yvette Guilbert
Jus Qu La. Quinn
Kate O'Donoghue (Chauncey Olcott's). Myers
Katherine (Yodle). Pete LeMaire
King Carnival March. Diamond and Curry
Laugh and the World Laughs With You. Myers
Laughing Song. Geo. W. Johnson
Lesson in Music. Signor Frejoli
Lulu Song. Spencer
Mamie Riley. Quinn
Maybe Mary Didn't See New York. Myers
Medley March. Diamond and Curry
Medley Reels (Banjo Solo). Vess L. Ossman
Monastery Bells (Orchestra Bells). Lowe
My Little Chorus Girl. Quinn
Nineteen Jolly Good Boys All In a Row. Myers
One Heart, One Mind (Xylophone Solo). Lowe
Pasage dans Izeyl. Mme. Sarah Bernhardt
Pasage dans Divorcans. Madame Regane
Pretty Blue Eyes. Eolian Trio
Pretty Molly Dwyer. Quinn
Say, Are You Single? Hunting
Sounds From Home (Orchestra Bells). Lowe
Spanish Dance (Banjo Solo). Vess L. Ossman
Sweet Inniscarra. Gaskin
Stephanie Garrotte (Zither). Wormeser
The Old Fashioned Mother (Chauncey Olcott's). Myers
Victor Hugo (Un pen de Musique). Mme. S. Bernhardt
Yankee Doodle (Banjo Solo). Vess L. Ossman
Yer Baby's a Coming to Town. J. T. Kelly
You're a Good Daddy. Gaskin
You're Not the Only Pebble on the Beach. Lottie Gilson
You're Not the Only Pebble on the Beach. Spencer

GRAMOPHONE RECORDS

Chin, Chin, Chinaman. Quinn
Handicap March Song. Quinn
Honey O. Gaskin
Love's Old Sweet Song. Gaskin
Medley of Jigs (Banjo Solo). Clements
Mixed Ale Party. Billie Golden
Mocking Bird Whistle. Billie Golden
Morning on the Farm. Maurice Forkou
Oh, Uncle John. Miss Maud Foster
Past and Future. Herbert Holcombe
Rastus On Parade (Banjo Solo). Clements
Rock of Ages. Herbert Holcombe
Southern Reels (Banjo Solo). Clements
The Bowery Girl. Miss Maud Foster
Then Givo Us a Drink, Bartender. Quinn
The Midshipmite. Myers
Tommy Atkins (with Trumpet). Gaskin
What do You Think of Hoolihan? Quinn
What Is the Gramophone? Geo. Graham

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 Diamond in the Rough. Safford Waters
A Dream of My Boyhood Days. Dresser
Ah, Could It Be! F. Ryan
Ain't I Your Honey Boy No More? G. L. Davis
Alma, Dear. E. A. Couturier
A Mother Never Can Never Forget Her Boy. Chrs. Miller
Back to His Childhood's Home. William Slafer
Belle of Avenue A. Safford and Waters
Belle of Hogan's Alley. James J. Blake and M. Bernard
Best Sweetheart of All. Will C. Carleton
Black Four Hundred's Ball. Billy Johnson and N. D. Mann
Breaking Home Ties. Joseph Hart
Casey's Dog and Tracey's Cat. Joseph Hart
Chimmie Fadden and the Duchess. L. A. George
Chippies on Broadway. Cooper and Francis
Coochy Coochy Coo (Negro Comic). M. S. Fitzpatrick
Cycliug Song. M. R. Knapp
Daisy and Nell (The Twins). W. A. White
Darling Paree Girls. Ilda Orme
Day Will Come. E. Selden and E. Holst
Dear Old Friends. Lindsay Lenox
Dilly Dally. Mays and Hunter
Dreams of My Own Land. Douglas Dean
Drummer's Dream of Home. Charles Robinson
Eli's Cake Walk. Reed and Kominsky
Ever Since Then. Scott and Orine
Handicap, Vocal. D. Reed
He Brought Home Another. Paul Dresser
He Fought For the Cause He Thought Was Right. Paul
Hugh McCue. Cohan
Hurrah For a Life at Sea. J. C. McCabe
Hush Yo' Business! Oh, Go On! Midgley and Levi
Honey, Does You Love Yer Mau? Ford and Bratton
I Don't Blame You, Tom. May
I Love You, Malinda. Al. B. Schultz
I'm Lonely Since My Baby's Gone. Barry Emerson
In the Baggage-coach Ahead. Gussie L. Davis
I Only Know I Love Her. Geo. Hassell
King Carnival, Vocal. D. Reed, Jr.
Love's Battle. Al. B. Schultz
Maggie Maguire; or, As Soon As I Buy a Home. W. Gray
Maloney's Leg. Joe M. Sparks
Mamie Reilly. Maude Nugent
My Gal is a High Born Lady. Fagan
My Handsome Jim. Abeles and Witt
My Heart, Kathleen, Is Still Your Own. Chas. Graham
My Image In Thy Soul. Chas. Graham
My Little Chorus Girl. William F. Gould
Oh, Aunt Jane. Isaac G. Reynolds
Old Jim's Christmas Hymn. Wm. B. Gray
Oue New York. Safford Waters
Ou Sunday. Flynn
On the Benches In the Park. Thornton
Pat Malone Forgot that He Was Dead. Carroll
Pebbles On the Beach. Mann & Starr
Petticoat Lane. John and Harry Dillon
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Sweet Rosic O'Grady. Nugent
Take Back Your Gold. Monroe H. Rosenfeld
Ta Rum Pa Tuu Tum. Ilda Orme
Tell Her That We Love Her Just the Same. A. J. Lamb
That's When You Learn to Love Them More and More
Lawlor and Blake
The Angel of Sunset Rock. Chas. Graham
The Belle of Hogan's Alley. Bernard & Blake
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Then the Pipe Went Out. J. G. Reynolds
The Real Thing. Arthur Lamb
Time Will Tell. Harry S. Miller
When it is Love at First Sight. Mock
When it's a Boy. Goodwin & Morse
When She's Just About to Fall. Cy Worman
Will You Love Me, Sweetheart, When I'm Old? Lamb
Won't Somebody Give Me a Kiss?
Won't You Let Me Stay a Little Longer? Quimby
Would You Ask? Smith
Yankee Girl In Gay Paree. Ilda Orme
Yes, I Love You. R. M. Stults
You'll Be Sorry When I'm Gone. Monroe H. Rosenfeld
Your Ticket Is Not Good To-day. Chas. Graham

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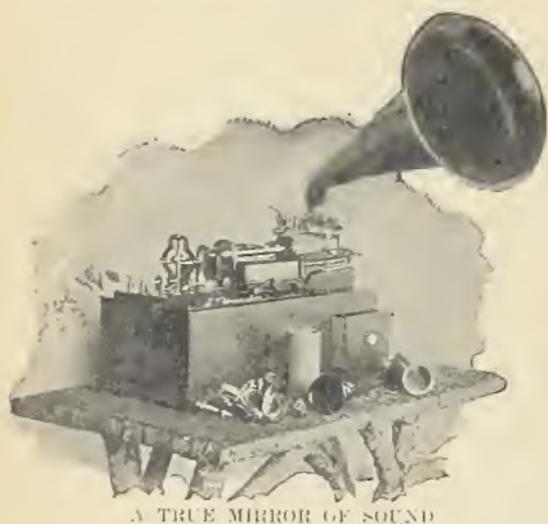
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