

PHOTOGRAPHIC NOTES.

*Exhibition of Photographs at Philadelphia.*—The recent exhibition held at Philadelphia, Pa., from Jan. 11th to the 16th, at the Pennsylvania Academy of Fine Arts, under the auspices of the Photographic Society of Philadelphia, was undoubtedly the largest display of amateur work yet seen in this country, comprising, it is estimated, over 1,750 separate pictures. It was open to both professional and amateur photographers from all parts of the world; but very little professional work was noticed, and, such as it was, was of excellent quality.

The western views by Mr. W. H. Jackson, Denver, Col., were remarkable for their large size and clearness, and included work made from paper negatives. Mr. Gutekunst, of Philadelphia, had on exhibition his immense panoramic view of the 1876 Centennial Exhibition, about eight feet long by two feet wide, printed upon one sheet of paper, from seven negatives; also a fine panoramic picture of the Capitol at Washington.

Specimens of his fine photo-engraving work were also to be seen.

Mr. Fred. E. Ives exhibited specimen orthochromatic photographs made by his improved chlorophyl process, which attracted attention for the great amount of detail noticeable in the red and yellow portions of the pictures; there were also examples of the Ives process of photo-engraving.

The large assortment of views, mostly direct prints, but including one or two enlargements made upon the new Eastman gelatino-bromide paper for positive printing, by Mr. Wm. H. Rau, of Philadelphia, were extremely clear and good, and specially interesting from the fact that they were the first general exhibition of this class of work in this country. When it is considered that most of the prints were made, perhaps, at night by an artificial light, the possibilities and advantages of the paper for obtaining prints from negatives with a printing-press rapidity, independent of sunlight, at once becomes manifest.

There appears to be a large future in store for this paper; its excellent keeping qualities, easy and quick manipulation, make it at once superior in many classes of work to the ordinary albumen paper.

Excellent specimens of platinotypes were shown by Mr. William Willis, of Bromley, England. We also noticed some beautiful examples of instantaneous marine views sent from England, by G. West and Sons, of yachts flying through the water sped on by a stiff breeze, and yachts in tow, with sails spread.

Both pictures were remarkable for their clearness and crispness, being also extremely sharp; every line and peculiar curve of the white foam, as well as the hull and rigging and sails of the boats, was wonderfully distinct and natural.

Mr. Pepper exhibited many curious instantaneous photographs of athletes in various positions; one or two of his best pictures illustrated a man in the act of making the high jump, for example, just as he was about to pass over the bar. The peculiar attitudes shown were novel and interesting, illustrating, as they did, that the negative plate often catches movements which are too quick for the eye to perceive.

A frame of photographs by Dr. Ellerslie Wallace, including many views of English scenery, castles, and old abbeys, was particularly fine. The point of view was well chosen, and the work, technically, all that one could wish for.

A number of views taken in India of the Calcutta Exhibition, by Mr. C. R. Pancoast, were much admired on account of their clearness, good lighting, excellent choice of point of view, and fine technical qualities.

Artistic landscapes were shown by Mr. Robert S. Redfield, the secretary of the society, and deserved the prize awarded him. Both Mr. Frank Bement and J. C. Browne had a number of fine pictures, the latter showing a view of a catalpa tree in full bloom on the Hudson, the detail and lighting being excellent. The negative from which the print was made was by the old wet-plate collodion process.

We also noticed some excellent work sent by Mr. John E. Dumont and Frederick A. Jackson, members of the New York Society of Amateur Photographers. Mr. Dumont taking a prize for a beautiful Niagara winter scene. Mention should be made of an attractive composition picture entitled "The Village Smithy," by W. L. Shoemaker, of Philadelphia, in which the arrangement of the figures was extremely natural.

What an artist can do with photography was shown in the twenty pictures exhibited by Mr. George B. Wood; his particular specialty appears to be in the taking of single figures and groups, each of which is so lighted and composed as to tell the story intended.

All of his work, in this respect, was excellent, and was rendered more interesting by his happy faculty of giving each picture an appropriate and suggestive title.

Mr. J. P. Gibson, of Hexham, England, had on exhibition five or six pictures which had been awarded eight prizes at different English exhibitions. In them a very high standard of work was noticed.

Several ladies were among the exhibitors, their work being of excellent quality.

In lantern slides made on dry plates in which it was required that both the negative and slide should be made by the same person, the award of a prize was accorded to Mr. James E. Brush, of the New York Amateur Society. On the evening of the 14th, his slides, including over one hundred others, were thrown upon a large screen in a commodious hall on the ground floor of the main building. The lantern exhibition, which was well conducted, proved to be one of the most interesting and entertaining features of the entire exhibition, and comprised many beautiful pictures. A special double lantern, with a peculiar dissolving valve arranged between the two gas cylinders, instead of being attached to the lantern, the invention of Mr. Frank Bement, was used, and worked quite smoothly.

The managers of the exhibition are entitled to considerable praise for their enterprise in collecting and hanging such a formidable array of beautiful pictures. The interest in amateur photography will undoubtedly be extended by the continuance of similar exhibitions, which we hope will become more frequent. The display of fine specimens of any art is invariably instructive, and in no better way can the progress made in an art be made known than by a public exhibition.

American Society of Civil Engineers.

The American Society of Civil Engineers held its annual meeting on the 20th and 21st, at the Society's house, in New York City.

During the first day, sessions were held morning and afternoon, at which the reports of the Secretary and of the Committees on Technical Subjects were presented and discussed.

Prof. Eggleston, on behalf of the Committee on Standard Time, reported that the movement toward a continuous notation of the entire twenty-four hours was making gratifying progress. In time it will probably be adopted on all the leading railroads. The Canadian Pacific has already printed its time tables according to this standard.

A committee on rail and wheel sections was appointed. The Norman Medal was awarded to Mr. Eliot C. Clarke, of Boston, for his paper on cement, referring particularly to its use in the Public Works of Boston. The Rowland Prize was presented to Mr. A. M. Wellington, for his paper on the friction of journals. Prof. Eggleston gave the results of microscopical examinations of the stone of the obelisk. He attributes its decay to a very minute vegetable growth found some distance beneath the surface, but still containing sufficient chlorophyl to show a green color. Dr. Rothwell explained a new system of laying submarine tunnels. The summer convention of the Society was voted to be held at Denver.

In the evening Mr. B. S. Church, Chief Engineer of the Aqueduct Commission, explained the work now in progress on the new aqueduct and the proposed dam at Quaker Bridge. The second day of the meeting was devoted to a visit to the works themselves, Mr. Church acting as host. The sessions terminated with a reception and supper in the evening. The Secretary, Mr. Bogart, announced the Society to be in a very flourishing condition. The membership is between nine hundred and a thousand, the annual revenue about \$20,000, and the total assets of the Society, including its comfortable house on East Twenty-third Street, are \$48,000.

Notes of Decisions Relating to Patents.

In the U. S. Circuit Court, Southern District of New York, before Judge Wallace, the bill of complaint alleges infringement by the defendant of letters patent for a new and useful improvement in electric lights, of which Sawyer and Man were the inventors, bearing date May 12, 1885, granted to the Electro Dynamic Light Company, its successors and assigns, as assignee of Sawyer and Man. The application for the patent was filed January, 1880; in January, 1880, they assigned their whole interest in the invention to the Electro Dynamic Light Company; in April, 1881, that company assigned the invention to the Eastern Electric Manufacturing Company, and the Eastern Electric Manufacturing Company, in September, 1882, assigned the invention to the complainant. All these assignments were duly recorded in the Patent Office more than two years before the patent was granted.

The defendant has demurred to the bill, and the point raised is that the patent is void, because the Electro Dynamic Light Company, the grantee named in the patent, had assigned its interest to the complainant before the patent issued, and had no interest of record in the patent at the time the same was issued. The demurrer admits the validity of the assignments made by the Electro Dynamic Light Company to the Eastern Manufacturing Company and by the latter company to the complainant, and no question is made, or can be made, respecting their efficacy to invest complainant with the title of the Electro Dynamic Light Company to the invention. Judge Wallace overruled the demurrer, and holds that the title thus acquired by the

complainant is as effectual to protect the defendant against any claims of the Electro Dynamic Light Company as if the assignment had been made by that company to the complainant after the patent had issued.

If the demurrer is good, the complainant, although the owner of the invention and the sole party entitled to enjoy the monopoly conferred by the patent, will be defeated because of the inadvertence or erroneous action of the Patent Office in issuing the patent to a corporation which cannot challenge the complainant's rights or assert any adverse claim against the defendant. It may well happen occasionally in the pressure of business at the Patent Office that an assignment made during the pendency of an application may be overlooked, although duly recorded, and the patent be issued to the inventor, or to an intermediate assignee whose assignment is on record. If, whenever this happens, the patent is to be deemed void, notwithstanding the title of the grantee named in it is instantly vested in the true owner by operation of law, and notwithstanding no possible injury or inconvenience can be occasioned to third persons or to the public, the result would be one of such unnecessary hardship that it is not reasonable to suppose that it could have been contemplated by Congress while framing the provisions of the patent laws.

In the U. S. Circuit Court, District of Vermont, in the case of the American Diamond Rock Boring Company vs. Sheldon *et al.* an arrangement of devices was described in an original patent, although it was not called a combination. Judge Wheeler held that a reissue calling it a combination, and containing a statement that the invention consisted also in this combination, does not appear to vary the prior description in effect.

If separable claims of the reissue cover the same invention as the original, and no more, such claims would seem to be as valid as the original, and would be infringed by whatever would infringe that.

The enlargement of the scope of a claim six years after the original patent is not valid according to the series of later decisions upon reissued patents.

The act of 1837 and the present statutes carefully limit the right of a party in an action to such material and substantial parts of the thing patented as could be definitely distinguished from the parts claimed without right.

The parts of the claims in this reissue which might cover the infringement are so blended with the other parts that they cannot be distinguished therefrom, and the bill must thereupon be dismissed.

A "House Epidemic" of Pneumonia.

Dr. Fr. Rudberg gives a brief account in the *Étra* of an epidemic of pneumonia occurring at the end of last year in a workmen's barrack at Sandarne, near Soderhamm, in Sweden, where there are five of these barracks, situated in a row, at a distance of a couple of hundred feet from one another on a piece of sandy soil near a pine wood. The epidemic was confined to one of these barracks, there being only a single case in the remaining four at the same time, and very few in the surrounding districts. This building was constructed of wood, and had sixteen rooms arranged in two stories, there being a common porch to every two rooms. Each room was occupied by a separate family. The total number of inhabitants was seventy-eight, of whom forty-seven were over fifteen years, and thirty-one under that age.

The first case occurred on November 16, in a boy of eight; subsequent cases occurred on November 27 and December 4, 7, 11, 14, 16, 19, and 20. Of these there were four males and five females, one boy and one girl being under ten, but all the rest between twenty and forty. Six cases occurred in the lower story, and three in the upper. The disease appeared to have no tendency to pass from one room to the adjoining one, or even to another room on the same story, and in no case was more than one inmate of a room affected; but one woman living at a distance, who occasionally visited some of those who had the disease, was attacked by it herself on December 14. It should be stated that there was plenty of intercommunication among the families. The writer does not mention any of the clinical characters of the epidemic.

Prize for Instrument to Relieve Deafness.

From the Boston *Medical and Surgical Journal* we learn that Baron Leon de Lenval, of Nice, has offered a prize of 3,000 francs for the best readily portable instrument, constructed according to the principle of the microphone, for improvement of hearing in cases of partial deafness. The committee consists of the following persons, to any one of whom instruments of this description, intended for competition, may be sent before December 31, 1887: Professor Hagenbach-Bischof, Ph. D., M.D., Chairman of the jury (Basle); Benni, M.D. (Warsaw); Professor Burekhardt-Merian, M.D. (Basle); Gellé, M.D. (Paris); Professor Adam Politzer, M.D. (Vienna). The prize will be awarded at the Fourth International Congress for Otology, to be held at Brussels in September, 1888.

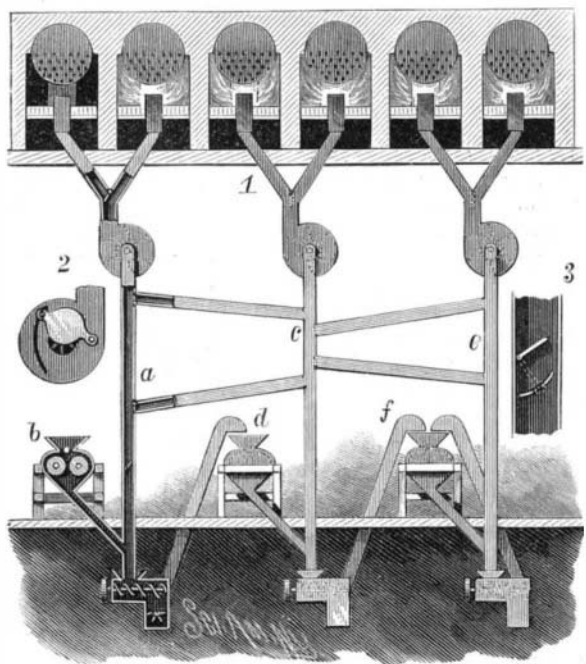
**California Whaling Interests.**

San Francisco is now one of the most important "whaling ports" in the United States. There has always been more or less whale fishing carried on at the stations along the coast, the product of which was marketed in this city, and this port has been an outfitting station for some few whaling vessels. But in the past few years the whaling fleet which is outfitted here has grown very materially. A number of the vessels are now owned here, among them the steam whalers, the best of the fleet. The Arctic Whaling Company have built large tanks for their oil on the bay shore, and the product is all handled here. The whalers that formerly outfitted at the Hawaiian Islands now come to this port. Oakland Creek is now a favorite wintering place for the Arctic whaling fleet. Some of the vessels leave here every fall to go to "the line" fishing, and then work up to the Arctic when the ice breaks up, returning here with their cargoes. The high price of bone of late has made the business very profitable.

The bulk of the oil is reshipped from here to the East, most of it going around Cape Horn in vessels. Of late, however, the railroad company has placed the freight rates at such a point that oil is shipped East by rail. One day recently the first shipment of whale oil for the season was sent from here. There were 17 car loads, or 460,000 lb. of oil. The train was a special one, and it was intended to make the unusual time of 12 days to New Bedford, Mass., the destination of the consignment. No transfers were to be made. The whaling business of this port is now very important. There is a great deal of money invested in it. The steam whalers were some of them built here. The business is one which adds greatly to San Francisco's industrial importance. —*San Francisco Ex.*

**FEEDING COAL TO FURNACES.**

The method of feeding coal to furnaces as herewith illustrated is designed to insure a more thorough combustion of the coal than has heretofore been obtained. A series of crushers, *b d f*, pulverize and then discharge the coal through branch ducts into the pipes, *a c e*, when the blowers placed at the upper ends of these pipes act upon it. The coal is first put into the crusher, *b*. After being pulverized, it passes through the duct to the pipe, *a*, where the suction current created by the first blower carries the finer particles up into its casing, and then by blast forces it through the forked distributing ducts against fire clay deflectors placed in the center of the fire chambers, just in advance of the bridge, where it is consumed. The large particles of coal, upon which the current has no effect, fall upon a screw in a receptacle at the lower end of the pipe, *a*, which carries them to an elevator which delivers them to the crusher, *d*, set to crush finer than the first one. The course of the coal after leaving this crusher is substantially the same as already described. If all the coal is not drawn up by the blower after leaving the

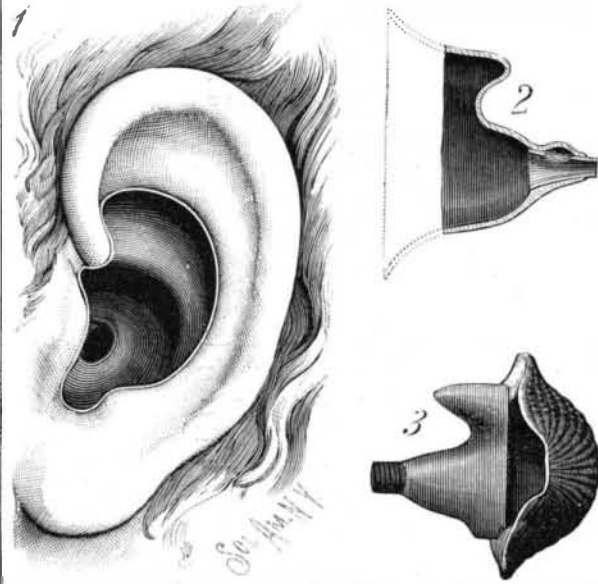
**REHMENKLAU'S APPARATUS FOR FEEDING COAL TO FURNACES.**

third crusher, *f*, it is carried back by an elevator for further crushing. The pipes, *a c e*, are connected together as shown, and at the junctions are placed valves; the branch pipes leading to the furnaces, and the main pipes, are also provided with valves. The free end of the rod operating the valve moves in an arc slot (Fig. 3), and can be locked in any position by a winged nut. By means of these valves the supply of pulverized coal can be cut off or admitted to any one of the furnaces. A detail view of one of the air inlet ports of the blower is shown in Fig. 2.

This invention has been patented by Mr. R. W. O. Rehmenklau, of 310 Plymouth Ave., Minneapolis, Minn.

**THE MICRO-AUDIPHONE.**

The accompanying engraving represents the micro-audiphone, the invention of Dr. F. M. Blodgett, of 207 West 34th Street, this city, which is designed to relieve deafness. The instrument is made of hard zylonite or other suitable material, and is formed to fit the ear, the shape being as clearly shown in the three views herewith presented. In the tube of the instrument is placed a membrane, or diaphragm, of very thin rubber or skin, held by the edges over a small chamber, as shown in the sectional view, Fig. 2. This diaphragm is by preference guarded by a small metal thimble placed in the tube, and formed

**BLODGETT'S MICRO-AUDIPHONE.**

with an opening to expose the diaphragm to the action of the sound waves passing through the tube. The action of the waves on the diaphragm causes it to vibrate, so that it has a "sounding board" effect, and augments the waves and renders the sound more audible. The device may be provided with a tubular portion to be held to the ear by the hand, and it may also be formed with an extending flaring section to collect the sound waves, like an ear trumpet, and direct them to the tube, as shown by the dotted lines. As indicated in Fig. 3, the device may be provided with a shell-shaped attachment, held detachably in place by its edges entering dovetailed grooves in the outer part of the main device. The sound waves enter the opening and strike the inner surface of the shell, by which they are guided directly to the opening of the ear. This attachment serves to collect the sound waves in a manner similar to the hand when held just behind the ear. The above-mentioned article has recently been patented in the U. S., Gt. Britain, and Canada.

**APPARATUS FOR MAKING ILLUMINATING GAS.**

The accompanying illustration represents an apparatus for some time past in operation at the Laclede Gas Works, of St. Louis, Mo., and we are assured that it has been in continuous operation, without one minute's intermission, since it was first started. A somewhat detailed description of the apparatus will be of interest to all concerned in the making of illuminating gas, because of the many valuable features introduced—all tending to simplify the construction, lessen the cost of the gas, and reduce to a minimum the labor necessary to operate it.

The generator, *A*, is provided with a door, fuel hopper, and valve, stoke and sight holes, *s*, and take-off pipe, *P*, leading through suitable valves and pipe to the fixing chambers, *n*. The bench of retorts, *B*, is such as is used in coal-gas works, except that in place of two of the ordinary retorts generally used there is set a series of fixing chambers, *n*, made of iron or fire clay. They are set on the tile on which the retort is usually placed, but, unlike the retorts, they run all through the bench lengthwise, and are connected at both ends with one common mouthpiece in batteries of four (more or less) to each mouthpiece.

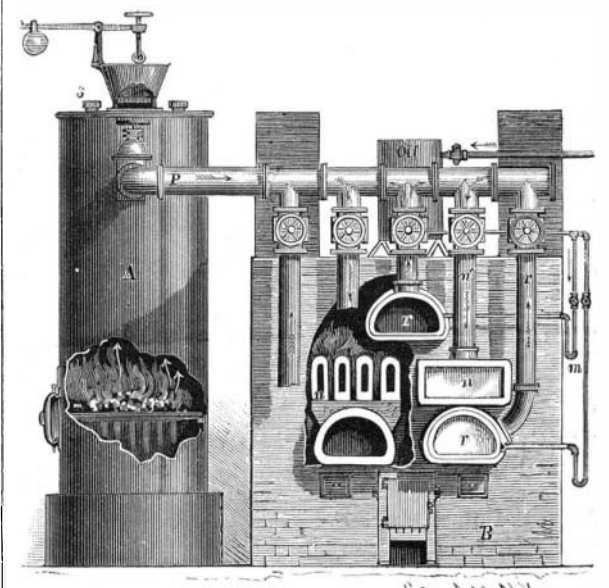
Although retorts might be used instead of these narrow fixing chambers, they would not be as good in operation. It is the heated surface or wall of the fixing chamber which acts on the gas; and when a retort is used much of the gas passes through, if used as a fixing chamber, uncombined, for, gas being a poor conductor of heat, only those vapors near the walls are acted upon. For this reason these inverted U-shaped fixing chambers were devised. As will be seen by reference to the engraving, these chambers are set so that a series of them may be united at each end by one common mouthpiece, and that, for instance, as shown, four of these chambers have one common inlet pipe, *n'*, and also one common outlet pipe at their opposite extremities, or rear of the bench. The outlet pipes connect with a hydraulic seal, from which the gas is taken by an exhauster.

Gas may be made in the retorts independently of the generator, in the good old-fashioned way from coal, with this difference—that as the gas made would not

go directly from the retort into the usual hydraulic main, but would have to pass first through the fixing chambers, the tar vapors, which condense soon after leaving the retort, would be subjected to additional heat at the time when they are in the best possible state to be acted on, viz., as vapors, thus adding greatly not only to the illuminating power of the gas produced, but to the volume as well. It will be seen, then, that the bench, as shown, may be used with advantage to make coal, oil, or wood gas, or a combination of all three, and with the best advantage.

The method of making water gas being well understood, it is not necessary to describe the generator here shown, except by the difference in operation from existing ones. Ordinarily, a bed of burning anthracite coal or coke is brought to a high heat by a forced blast; then the air is shut off and steam is admitted, which in passing through this incandescent mass is for the most part decomposed, forming what is generally termed water gas, which, in a subsequent stage, is carbureted to the required degree to form illuminating gas. During this operation the furnace door must be kept closed air tight; it is only opened when clinkering makes it necessary. Of course, the production of gas is intermittent; for while "blowing up," no gas is made for use. With the apparatus here described, all this is unnecessary. By opening the valve between the bench and generator, the same exhauster which takes away the gas from the retorts causes an in-draught of air at the generator door. Superheated steam, admitted under the grate of the generator, passes upward, and is decomposed the same as in the ordinary water-gas generator. The superheated steam, when once the generator is fairly started, seems to add to rather than take from the heat of this part of the apparatus. The fuel used in this case is ordinary Pittsburg gas coal, which, it is claimed, has never been used successfully in any other form of water-gas generator. The tar vapors from the coal add materially to the illuminating power of the gas made, since the gases in the generator as well as those in the retort must pass through the fixing chambers together.

This apparatus was at first designed as a mere auxiliary to the well-appointed coal-gas plant of the company in whose works it is now in operation; but it has proved itself so valuable that it is only a question of time when it will be the principal, and the regular coal-gas process the auxiliary. It is apparent that this apparatus can be easily applied to any style of coal-gas works, and it would be especially valuable to works in which it is found troublesome to supply the great demand made on their resources during the winter months. The bench here shown has produced 100,000 cubic feet of gas in twenty-four hours. It requires 5 gallons of naphtha or other oil, 11 to 14 pounds of bituminous coal, and 20 to 25 pounds of gas coke or other equivalent fuel to produce 1,000 cubic feet of gas. As stated above, the bench can be used either with or without the generator. The following simple enumeration of the operations necessary to run this apparatus clearly shows the small amount of attendance required, and will forcibly illustrate the difference between this and

**EGNER'S IMPROVED APPARATUS FOR MAKING ILLUMINATING GAS.**

other systems: Open the valves, start the oil, start the exhauster, feed the generator with gas coal about once an hour, feed the fire in the bench about once every forty-five minutes, and rake the ashes out of the generator occasionally. The first three are done once for all. This statement will be particularly appreciated by those familiar with the labor required in attending to other styles of apparatus.

All further particulars can be obtained from the inventor, Mr. Frederic Egner, Engineer of the Laclede Gaslight Company, of St. Louis, Mo.

ACCORDING to Prof. Langley, the inherent temperature of the moon is below that of melting ice.