

BRASS WORKS OF THE SCOVILL MANUFACTURING COMPANY,
WATERBURY, CONN.

The manufacture of Brass, and the countless articles made from that metal, is a business for which the State of Connecticut and especially the City of Waterbury, has long been famous. The treatment of the subject in all its bearings would be a work of immense magnitude, our present purpose is simply to sketch the progress of a single firm in this industry.

The works of the Scovill Manufacturing Company are situated in Waterbury, the buildings fronting on Mill Street, present a continuous line of 800 feet, being for the most part three stories in height, and substantially built of brick. To the rear extend wings and many out-buildings, a Canal, half a mile in length, leads water to their wheels, improvements of the water power costing the company \$60,000, within a few years. The water drives two wheels, of about one hundred horse power each. Additional to this there is a steam engine of one hundred horse power. Four hundred operatives are constantly employed. The value of goods continually on hand, made or in process of manufacture, is more than half a million of dollars. The capital employed by the Company is about a million and a quarter. The business was established as long ago as 1802. The capital at first was very small and for a long time the growth was slow. Even forty years ago the business was comparatively small, all of it being done in one wooden building two stories in height, and in another one story wooden building, part of which was occupied as a grist mill. The growth of the concern to its present size forms an interesting part of the history of American manufacturers and one extremely creditable to mechanical ingenuity, energy and skill. Here the brass business in this country was first begun. That it should have succeeded so well in spite of limited means, local disadvantages and inexperience, is surprising. This success is due in some degree no doubt to a judicious protective tariff, but still more to the energy of the managing men, the invention of labor-saving machinery by skilled mechanics, and the great perfection and beauty of the goods, which their taste and skill has enabled them to produce. Their goods now go to all parts of the world, and are sold in Birmingham itself in the very face of the British Lion.

One important branch of their manufacture is Button making. To this one of their largest buildings is exclusively devoted. They make a specialty of military and naval buttons, and all other uniform buttons, such as are worn by militia companies, firemen, rail-road men, schools, colleges, and societies throughout the country. They supply to a large extent the Cuban and the Spanish American Government with buttons for their troops. They also make a great variety of buttons for liveries, from designs and dies to order. A corps of designers and die-sinkers is employed on work of this sort, and in getting up new styles of buttons to suit the tastes of the ladies. The wonderful variety of designs accumulated in this way during the course of years can scarcely be conceived without a visit to their cabinet of samples, which contains buttons of every imaginable pattern, gilt, silver plated, nickel plated, bronzed, enameled, oxydized, silvered, stamped, chased or brightly burnished. There are also buttons of glass and metal combined, or of metal and cloth. Also an infinite variety of covered buttons; lasting, worsted and brocade for men's wear, and silks and velvets of all shades for ladies' wear.

Another department of the works is devoted to the making of wrought brass Butts and Hinges. The machinery for making them works automatically, and is the invention of mechanics in the employ of the company. These hinges range in size from three-eighths of an inch to seven or eight inches. The cheaper ones are used for furniture, inside blinds to houses, &c., &c. More expensive ones of ornamental patterns, gilt, silver plated and engraved, are made for use on piano-fortes. Hinges of special patterns are furnished to order. Many are made specially designed for sewing machine cabinets. Very strong and heavy ones are made for use on ship board, where iron is objectionable from its liability to rust.

The Company have just completed machinery for the manufacture of furniture casters, made entirely from wrought metal, by processes of their own invention. The peculiar merit of the casters consists in the introduction of small iron balls, acting as friction rollers and thus causing the caster to turn more readily than the ordinary casters. Being of wrought metal they are also much stronger than the common ones, which are made of cast metal.

A large department is devoted to the manufacture of Kerosene Oil Burners, Lamps, and Lamp Trimmings. In this as in other branches of work this company has had marked success and is noted for the perfection of its work. A great variety of burners and lamps, as well as large quantities, are made by them, and are shipped all over this continent and also to Europe.

Thimbles are made here of silver plated brass, and of German Silver. They are formed by powerful machinery from a flat disc of metal, after which they are turned, milled and burnished. The better grades are made with the same care as the best silver thimbles and are for practical purposes, equally good.

Mattings and preservers for photographs have been made in this establishment for many years. The demand since the introduction of card pictures has greatly decreased, but at one time the making of these goods was a considerable part of the business of the Company. It was originally taken up in connection with the manufacture of plated metal daguerreotype plates, in the manufacture of which this company were pioneers.

Plated metal, is still one important branch of their manufacture. It is used for coach lamps, reflectors and many other articles. It is made by uniting ingot copper and a plate of silver, the whole being rolled into a thin sheet, leaving one side coated with the silver, while the other shows copper only. In Europe the silver is united to the ingot by heat, but the Scovill Manufacturing Company have a secret process by which the union is made without heat and without leaving the silver liable to flake off in working, as is so often the case with the foreign articles. Metal plated in the same way with platinum or gold is also made here; also, a white metal, silver plated, an article never successfully produced by any other manufacturers. For the making of this plated metal the Company have a mill detached from their other buildings, which is devoted exclusively to this work, the rolls being made especially for it and highly polished.

The "Drawing Department" is the name given to that part of the works devoted to the manufacture of brass ferrules for handles, canes, fish-rods, &c. Seamless tube, solid drawn, is also made here, being drawn up from sheet metal without the use of any solder. It is greatly superior to the ordinary brazed or soldered tube, being sounder, smoother, and of much greater strength.

The portion of the works employing the most capital, and on the whole, the most important of all is the Rolling Mill, a building two hundred by one hundred and twenty feet, adjacent to which is the casting shop, of one hundred by seventy-five feet. It employs one hundred men and produces annually about two million pounds of sheet metal. This metal is all rolled cold and is of the finest quality. Part of it is brass, and part is gilding metal, oride, German silver, etc. It is rolled of all thicknesses, down to that of the thinnest writing-paper. It is made of all

qualities and tempers to suit the almost infinite requirements of manufacture. Some is made tough and ductile for spinning and stamping into irregular shapes. Some highly tempered, for springs or reeds for musical instruments, while other is made to be easily drilled or turned. This list is adapted for the works of clocks or similar purposes. The brass for the inside works of all American watches is made here, as is also the nickel metal for the same purpose. The oride is a close imitation of gold and is much used by jewelers. The German silver, otherwise called albatra, is used to some extent on show cases, for the ornamentation of steam fire engines, for cornets and other musical instruments, etc.; but by far the largest part of it is used for making silver plated spoons, forks and other table ware. For this latter purpose thousands of pounds are consumed daily.

In the manufacture of most of the articles above mentioned the Scovill Manufacturing Company have introduced many original processes and perfected special machinery, which enables them to produce a grade of goods superior to any formerly imported, and unsurpassed by those of other domestic manufacturers.

Another branch of the Company's business is the manufacture and importing of everything pertaining to the photographic art, noticed in the following article.

PHOTOGRAPHIC MATERIALS.

This branch of business, though of comparatively recent origin, has become very extensive, and now embraces several distinct departments, either of which is of sufficient magnitude to require separate and individual management.

This Company has from the earliest inception of the art of Photography, employed a heavy amount of capital and able and intelligent talent in the development of the various requirements of the craft, and have manufactured and imported every article used in the business.

Divided into its respective heads the departments may be named as follows:

Photographic Apparatus, embracing the Camera Obscura, or Camera Box, with its various styles of Holders or Dark Slides, and Stands for gallery and field Photography. The principal factory of the Company devoted exclusively to this department, is that of The American Optical Company, which is not only the largest in the world, but deservedly enjoys the reputation of turning out the most perfect apparatus which has ever been produced, while its many new and original inventions are unique in practical usefulness, beauty of design and elegance of workmanship. Necessary to the attainment of such excellence, so fundamentally important to the successful prosecution of the art, this establishment employs a large force of skilled artisans who have undergone a long and careful preparatory course of practical instruction. Apart from the very extensive demand in our own country for the products of this factory, the exports to the principal countries in Europe form no inconsiderable proportion of the business of the Company. The actual birth place of the art of Photography, Paris, was amongst the first to discover the superiority of the inventions of this establishment, while Germany, England and Scotland followed closely in her wake, evidencing the high estimation in which these wares are held in the very art-centres of the old World.

This Company also own the extensive factory known as Samuel Peck & Co., at New Haven, Conn., where less elaborate and lower priced articles of Photographic Apparatus are made, such as are most commonly used in galleries of more moderate pretensions, yet in all parts of mechanical accuracy and durability of construction, its products stand unrivalled. At this factory are also made, Cases, Frames and Trays. This department embraces all that relates to the exterior finish of the Daguerreotype, Ferrotypes, Ambrotypes and Photographs, and comprises cases of almost infinite variety of Morocco, Velvet, Paper and Composition: Frames, Passepartouts and Trays of beautiful construction and elaborate and costly design. The many appliances required in the manufacture of these goods are very expensive, involving in some instances a cost of five hundred dollars and upwards for a single die from which the Case or Frame is made.

In the early history of the art, American Photographic Chemicals were unknown, and this Company were the first to import such as were required. As the art grew in importance and magnitude, many discoveries were made by American experts, and the necessary Chemicals were manufactured to a considerable extent by this Company, more especially compounds such as Collodions, Salts of Gold, Silver, and various other metals, Varnishes, Developing Preparations and Enamels, which surpassed foreign products not only in point of excellence but in cheapness, so that their preparations have to day an unrivalled reputation, and are in active demand in all quarters of the world where the art is practised.

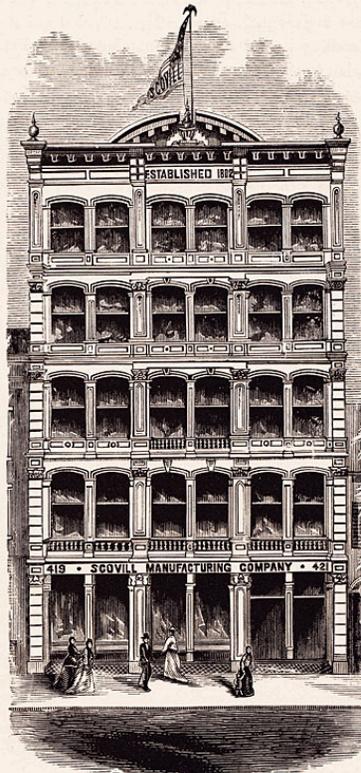
In the department of importations may be enumerated English, French and German Photographic Glass: Photographic Papers, plain and albumenized, and certain unmixed chemicals, such as Hyposulphite Soda, Pyrogallie Acid, etc. which, owing to the comparative cheapness of foreign labor and certain material, can be brought into the country at a lower cost than they can be made here. This Company supplies these foreign goods to photographers and jobbers in photographic materials, and they are the recognized headquarters for everything pertaining to the art.

Under the head of Accessories comes Photographic Backgrounds, Plain in Woolen, Dis-temper and Oil, and painted in imitation of landscapes and interiors: Position Chairs, of original and exceptionally chaste and exquisite design; Tables, Pillars, Imitation Rocks and Rustic Seats, Photographic Curtains of Silk and Repe, of varied styles and qualities. Without particularizing or attempting further to classify the products of this branch of manufacture and importation, it is believed that this Company has done more to develop the art of Photography and facilitate its prosecution, than all the combined agencies beside, subsidizing not only every known instrumentality which invention has devised, but fostering every resource which money and the progressive instincts of a refined and cultured race have developed.

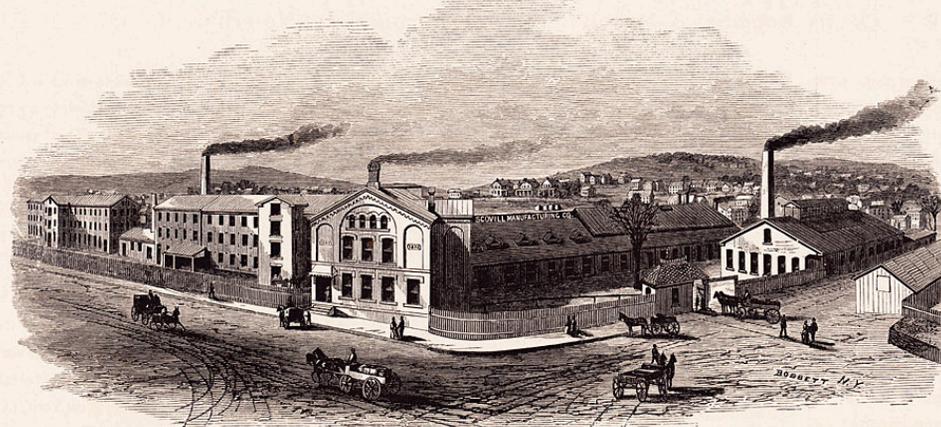
This Company are also sole agents for The Phenix Plate Co's Ferrotypes Plates, on which the Ferrotypes Picture is made. These Plates are made in Black and Chocolate colors by a patented process. The products of the Phenix Plate Co. not only exceed in magnitude those of all combined manufacturers besides, but are unequalled in quality.

The Company's principal warerooms are located at Nos. 419 and 421 Broome Street, New York. The building measures fifty by one hundred and nine feet in area, is steam heated and supplied with steam elevators and every modern business convenience. The basement extends a distance of twenty-five feet beneath the court yard in rear of building, affording safe location for the boilers and engines, and below the front sidewalk are spacious vaults for storage purposes. They also have depots for the sale of their manufactures at No. 137 State Street, Chicago, and No. 112 Federal Street, Boston.

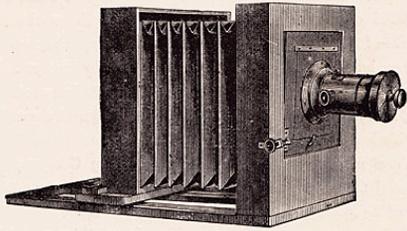
We are aware that this brief sketch conveys but an imperfect idea of the extent, variety and complicated nature of the business carried on by the Scovill Manufacturing Company, but it may afford some conception of the amount of energy, enterprise, skill and executive ability required to conduct such extensive operations. From small beginnings this Company have built up a business which has added very materially to the prosperity of the city where their principal works are located; have bestowed direct benefit upon every consumer of their goods by lessening the cost of production while improving the quality of the articles; and have extended the reputation of American inventive and mechanical skill, not only within our own borders, but to many distant lands.



Scovill Mfg Co's. Warerooms,
419 and 421 Broome St., N. Y.



SCOVILL MANUFACTURING COMPANY'S BRASS WORKS,
WATERBURY, CONNECTICUT.



Patent Swing Front Camera.

W. KURTZ. PHOTOGRAPHS,
Twenty-Third Street, Near Broadway, N. Y.

Some inventions are happy accidents, others are developed by slow and pains-taking diligence. In reviewing the history of great discoveries, we sometimes wonder by what brilliant chance a great idea occurred to the mind of an obscure searcher after some better way; and sometimes we see a number of persistent investigators, all fascinated with the importance of the end to be obtained, one proposing to master the difficulty in one way, the others pursuing entirely different methods, and each contributing his own good part to the final success. In the latter way has the marvelous art of photography been developed.

Almost a century ago chemists had observed that nitrate of silver is a substance curiously affected by the rays of the sun, and it had occurred to them that somehow this property might be utilized in the pictorial art; near the beginning of the present century, two of the ablest chemists of England, Joseph Wedgewood and Humphrey Davy, succeeded in producing sun pictures by smearing a piece of leather with a solution of nitrate of silver and laying over it a picture on glass. The dark lines of the glass picture protected the silvered surface, and the sunlight passing through the other unshaded parts, would fix upon the leather a copy of the picture on the glass, but with inversion of light and shade. At this point photography remained for nearly forty years, no substance or treatment having been hit upon that could dissolve the salt of silver and fix the picture.

Between 1830 and 1840 two French chemists devoted much time to the mastery of the difficulties which begirt the problem. These men were Niepce and Daguerre. Niepce discovered that by coating a metal plate with a thin film of bitumen and exposing it for several hours to the sun's rays, the actinism of the rays would act unequally on the bitumen according to the lines on the glass alone; and after removing the negative, as we now call it, he found that certain essential oils, as that of lavender, would develop the positive by rendering the thin film of bitumen insoluble.

Daguerre aimed at the same results but sought them through a medium which has since proved more effective. He prepared his plate by exposing a polished silver surface to the vapor of iodine. In this way he obtained a sensitiveness which enabled him to use the camera and to obtain results with a few seconds exposure, the picture was developed with the vapor of mercury, and fixed by the hyposulphite of soda. The plates he used were silver or copper well plated. The highly polished surface was exposed to a vapor of iodine in a dark chamber, then in a camera exposed to the rays which come from the object to be pictured. Since then the marvelous art of drawing by the chemical power of sunbeams has emerged from the dimness and shadows which had previously surrounded it, growing clearer and better defined, overcoming faults, mastering objections, throwing old methods into the background, till now it has as nearly reached absolute perfection as the advancement of chemical science and the keenness of human faculties will allow.

Now and then we may find one of those weird, shadowy pictures made in 1840 and 1841, when Daguerre's discovery was first presented to an admiring public. When held at a proper angle, and in a strong light the likeness they present is admirable, and when the materials were well handled there are as yet no traces of "decay's effacing fingers," but in clearness, force and brilliancy they are so far beneath the magnificent pictures which come from the first-class galleries of to day—notably that of Kurtz—that one can hardly believe the later picture to be the direct descendant of the earlier.

The photograph was mainly an English invention. Six months before Daguerre published his invention, Mr. Talbot, an English Chemist, in a paper laid before the Royal Society described a sensitive paper for copying drawings or paintings by direct contact. The paper was prepared by baths, first in a solution of chloride of sodium and then in a solution of nitrate of silver. Thus he obtained on paper a film of chloride of silver, and the copying was effected by placing the object, (which must be in parts transparent,) upon the sensitive paper and exposing it to the rays of the sun. In this way as early as 1840 Talbot produced a negative, that is, a picture in which the lights and shades were reversed. This inverted picture being fixed, he produced positives by placing it on another piece of sensitive paper and again subjecting it to the sun's rays. This was the beginning of photographic printing.

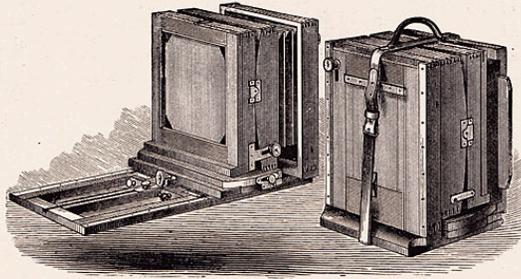
The next year, 1841, Talbot's constant experiments were successful in giving the art another grand advance. He prepared paper with iodide of silver, thus making it sensitive to light, fixed it in the camera, threw an image upon it with a lens, and then developed the shadow into a picture and fixed it with the chemical used by Daguerre, the hyposulphite of soda. Thus Talbot made paper negatives from which good positives could be printed; but there was an essential difficulty with them—a want of unity of structure and delicacy of lines inseparable from the use of even the best paper. It was evident that paper could be sensitized so as to receive a printed impression, and that impression be fixed so as to be imperishable,—no better material could be desired for a positive picture, but for a negative something else must be found. Scores if not hundreds of artists and chemists sought assiduously

during ten years for a suitable material on which to fix the negative picture but without success, and from 1840 to 1850 most sun pictures were made, upon silver plate and very properly called Daguerreotypes.

About the year 1851 the art of making glass negatives was discovered. At first albumen was used as a film or coating on plate glass, and albumen plates are still used by some artists. Legray was the first to suggest that collodion would make a better film for photographic manipulation than albumen. Collodion is produced by dissolving gun cotton in alcohol and ether. When the solution is poured on a plate of clean glass it forms a very thin, even and transparent film, which quickly dries and can scarcely be distinguished from the glass beneath. This delicate collodion surface can be made as sensitive to light as a silver plate, an image can be thrown upon it, it may be developed by combinations of iron with sulphur and with nitrate, and it may be fixed with a combination of potash.

There are two ways of finishing this collodion shadow into a picture. It may be deepened or intensified, fixed and set against a dark back ground, when it becomes a glass positive, sometimes called a melanotype, on account of its prevailing dark or shadowy tints, but the method which is far more common, is to wash this collodion shadow into a glass negative or type from which any number of pictures may be taken by allowing the light to shine through upon properly sensitized paper.

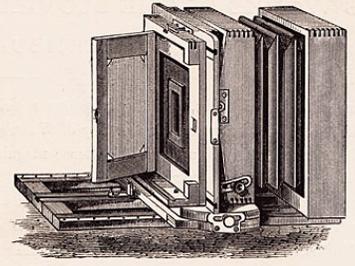
The development and perfection of this process has given modern civilization a new and wonderful art. By it in a few seconds a portrait is thrown upon a film covering, a bit of plate glass and there fixed. After that the sitters may go their way, may travel to the ends of the earth. Time may work wondrous changes on them—the fair, smooth face may become wrinkled with age, disease or accident may scar and deform it, but the true and perfect likeness—more correct than the most gifted artist in the world could paint—remains upon the glass unchanged, and from it thousands of images on paper may be printed.



American Optical Company's View Camera Boxes.

Within twenty years since collodion came to be a prominent chemical in photography, a thousand delicate and strictly chemical improvements have been made in every step of the process. The quality of the coating material has been carefully studied, and artists have discovered just the right combinations of gun cotton, ether and alcohol to use. The best mode of making this film sensitive, the best method of developing the shadows thrown upon it, the manipulation best adapted to remove defects in the impression, the bath that will set the lines, and, as important as either of these, the most approved and skilful handling of the glass as a type to print from, the various modes of toning, softening, intensifying and fixing the pictures thrown from the glass to the paper, have been studied with enthusiasm.

The perfect photograph is the finished result of a rare combination of natural aesthetic taste, aided by careful study, chemical knowledge, and that quick, impulsive faculty of perception which enables the operator to deter-



The Imperial Cabinet Portrait Box.

mine with the greatest nicety the precise moment when the best effect is produced. All the various pursuits of life are to a greater or less degree divided. This is true in the mechanical, professional and art worlds. The making of a piano involves numerous departments. Before an instrument reaches the wareroom it has passed through a dozen or more sets of hands. We have lawyers among us who have attained world wide fame for their success in certain classes of causes. We have great property lawyers, great patent lawyers and great criminal lawyers; men who in the special branches of their profession are almost invincible, but who in other branches would hardly rise above mediocrity. Some painter's have achieved a fame as durable as history because they were great colorists, some as portrait painters, others for their landscapes. In many pursuits better general results can be obtained through divisions of the necessary labor into separate branches, each branch or department being presided over by those specially skillful in that particular kind of work. But to obtain an absolutely perfect result the whole must be directed and supervised by one skilled in everything pertaining to the business. The art of Photography has such a man in Mr. William Kurtz, an excellent engraving of whose new and magnificent building adorns this page.

Long experience having taught Mr. Kurtz that many of the failures in Photographic Ateliers are attributable to improperly arranged sky-lights (work-rooms), and to imperfect lights caused by the reflections from surrounding buildings, he determined to place his new building in a locality free from all objections, and was fortunate enough to secure the three valuable lots on the Twenty-third Street side of Madison Square, formerly known as the "Corlies Estate," where he has erected the beautiful studios which are the admiration of artists and photographers. Directly opposite the centre of a fine square, with an uninterrupted northern light, a more admirable situation for photographic and artistic purposes could not be found.

The building has its entrance on Twenty-third Street, one door east of Broadway. Above the spacious store, on the first or ground floor, is the Photographic establishment, and as fine an exhibition room for works of art as New York can boast of. The *Herald* in its notice of the Third Annual Exhibitions of "The Palette," recently held in this room, mentions: "Mr. Kurtz, whose interest in the progress of art has induced him to spare no expense in making the building worthy of its destiny, as the future art centre of the city."

On Twenty-Second street are the Club Rooms and Art School Rooms, constructed expressly to meet the requirements of the "Palette Art Association."

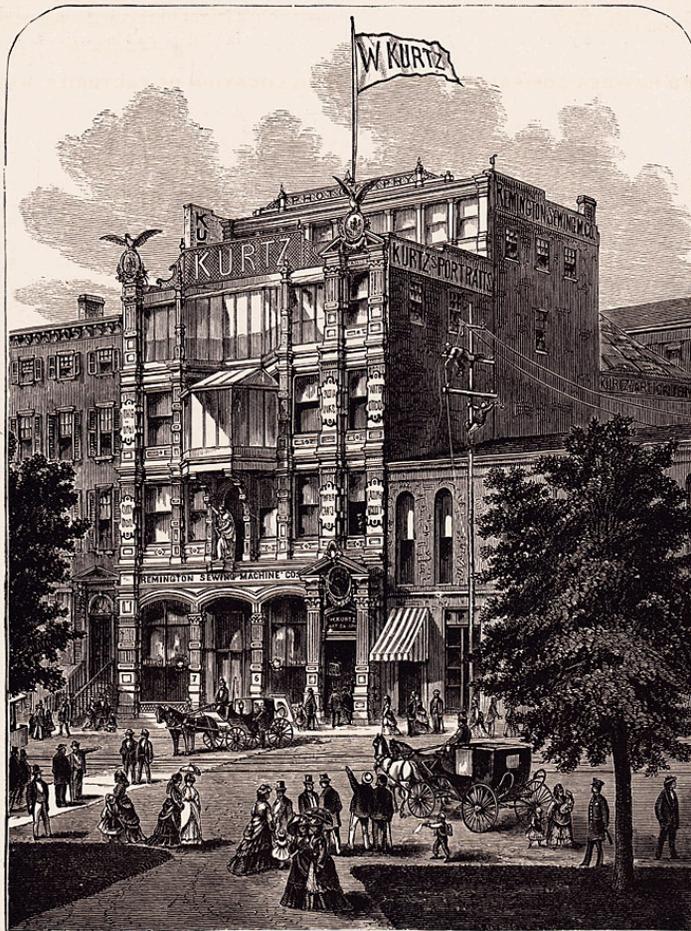
The building commenced in 1873 and now completed, at a cost of One Hundred and Thirty Thousand Dollars, is constructed of iron and brick, after the plans, and under the supervision of the eminent architects, Schulze & Schoen. It has all the desirable modern improvements, is heated throughout by steam (to avoid dust), and has a system of telegraphic wires throughout, to facilitate communication between the different departments; separate stair-cases are provided for the employees, so that the principal stair-case may always be kept neat and clean and exclusively for the use of visitors.

One great trouble of Photographers, who work on thoroughfares, is the necessity, which forces them to work on the uppermost floors of high buildings, in order to obtain the light required by their process. The weary ascent of several flights of stairs is, in a great measure, obviated in the new building. The stairs have an easy rise, and the abundance of light, furnished through an extensive glass front, by the clear, wide space of Madison Square, enables Mr. Kurtz to arrange his work rooms on the lower floors, while the upper are occupied by the Studios of Artists, who can be summoned, by the electric wire, to the separate studios provided for those who desire to sit for Pictures to be finished in Oil, Pastel, Crayon, Water Colors, Porcelain Miniatures, India Ink, etc.

For the accommodation of gentlemen in business, who find it inconvenient to make an appointment for a particular day and hour, he has arranged three Operating Rooms. No appointment will be necessary, and they will be subject to no delay, as he has facilities to make one hundred and fifty negatives per day; moreover, on account of the ample light now available, a perfectly clear day is no longer required, to produce a good portrait.

The technical department is under the supervision of Mr. Elbert Anderson (who received the "Medal of Co-operation" at Vienna;) the artistic will be conducted by Mr. Kurtz, assisted by some of the best talent of the country.

For many years it was (and still is to some extent) a general impression that photography had reached a much higher degree of excellence in Europe than in America. To counteract this impression Mr. Kurtz was induced to send specimens of the work executed at his establishment to the Great International Expositions at Paris and Vienna, where they were brought into competition with the works of the most celebrated photographers of the world. At both Expositions Mr. Kurtz received the highest premiums awarded, of which he may well be proud. Not only the jury of experts but photographers generally awarded to him the highest praise for his work and skill, and the noted newspapers of the world pronounced his collection of portraits the finest specimens of the Photographic Art ever exhibited.



WM. KURTZ'S ART BUILDING.