

THE AMERICAN ARCHITECT AND BUILDING NEWS

VOL. LXXV

SATURDAY, MARCH 1, 1902

No. 1366

CONTENTS.

SUMMARY:—

The Competition for the Grant Memorial at Washington.—
The Charleston, S. C., Exposition.— Exhibitions of the National Sculpture Society.— Thoughts suggested by the recent Address of Mr. Brooks Adams on the Value of Public Art.— Additions to the Collections of the Boston Museum of Fine Arts.— The Municipal Art League of New York and Street Refuges.— Railway to the Tombs of the Chinese Emperors.

65

NOTES ON IRON AND STEEL CONSTRUCTION.— IV.

67

OWNER'S RESPONSIBILITY FOR PAYMENT OF PROVISIONAL SUMS.

70

BOOKS AND PAPERS.

70

ILLUSTRATIONS:—

Section, Plan and Elevation: United States Post-office and Court-house, Elmira, N. Y.— Staircase Detail in the same Building.— Detail of Front Entrance to the same Building.— House of D. E. Norton, Esq., Euclid Ave., Cleveland, O.— House on the Avenue Malakoff, Paris, France; — House on the Rue de la Convention, Paris, France.

Additional: Dining-room: Hotel Manhattan, New York, N. Y.— Interior Door: Hotel Manhattan, New York, N. Y.— Street Fronts, Brussels, Belgium: Two Plates.

71

NOTES AND CLIPPINGS.

71

AN important competition is to be closed April 1 next, for the statue or memorial to General Grant, to be erected in Washington. The competition was announced a year ago, and those wishing to compete were required to send in their names before January 1 of this year. Thirty-six artists have responded to the invitation, including Cyrus W. Cobb, C. E. Dallin, T. Massey Rhind, Franklin Simmons, F. W. Ruckstuhl, Henry Niehaus, John J. Boyle, H. K. Bush-Brown and other sculptors, and, among architects, Warren, Wetmore & Morgan, Lord & Hewlett, George Keller, Ackerman & Ross, Lopez, Robb & Hornbostel, and Clarence Luce. Competitors are required to submit models, at a scale of one inch to the foot. Under the terms of the competition, all the models are to be exhibited for two weeks, and six are then to be selected, the authors of which will be paid one thousand dollars each. The final selection, carrying with it the execution of the work, will be made from among these six.

ACCORDING to the newspapers, the Exposition at Charleston, South Carolina, has not, so far, been very successful. The attendance is small, and almost exclusively local, the Northern tourists who were expected to flock to Charleston being very conspicuous by their absence. It is possible that the visit which President Roosevelt has promised to make will do something to revive outside interest, and, as the season advances, many of the Northerners now in Florida are likely to stop over a day or two in Charleston on their way home; but, the prospect certainly is that the South Carolina Exposition will suffer, even more than the one at Buffalo did, from the weariness and indifference with which most people now regard great exhibitions of any sort. To a certain extent, also, the Exposition at Charleston is at a disadvantage, as one anywhere in the far South would be, from the prevailing opinion in the North and West in regard to Southern civilization. Of course, the few Northerners who have friends or relatives at the South know that South Carolina, Georgia, Alabama, Mississippi and Louisiana are full of intelligent and good people, whom we may well be proud to own as fellow-citizens; but the average Northerner, who gets his ideas of conditions south of Mason and Dixon's line from the newspapers, firmly believes that the people of the South find their principal amusement in burning negroes alive, or hanging them and "riddling them with bullets," with, occasionally, a "race war" to call out a large number of people. It is true that these occurrences take place in the remote country-districts, and only involve a small fraction of the population, and it is quite possible that the people hung or shot or burned deserve their fate; but the undisputed fact that such things happen almost daily in the South, and the knowledge that a Governor of a Southern State has found it necessary, in an official message, to deplore the carelessness in such matters which led some of his fellow-citizens to lynch a man for a crime committed at a distance, and then, after packing the corpse in salt, and forwarding it for identification to the scene of the crime, to find out that it was the wrong man, have given Northern people a horror of what they suppose to be Southern ways which it will take generations to overcome.

THE National Sculpture Society, which has not held an exhibition for three years, proposes this year to have two, one in April and the other in October. The April exhibition is to be held at the rooms of the National Arts Club, 37 West Thirty-fourth Street, New York, and will be devoted to statuettes, medals, bas-reliefs, small busts, and sketches or models for larger works. These smaller objects do not get the attention that they deserve when shown with life-size or heroic subjects, and for this reason the Society has decided to try the experiment of exhibiting them separately. In October, an exhibition of larger works will be held in the Madison Square Garden, in connection with the exhibition of the New York Florists' Club. Every one remembers the success of the Society's last exhibition, in which the subjects were shown with a background of plants, and the same effect, on a larger scale, should be still more attractive.

MR. BROOKS ADAMS, it seems to us, is seriously misleading the public in some of his recent papers on the commercial value of public art. Quoting an estimate, of very doubtful accuracy, that American tourists spend a hundred million dollars abroad every year, he argues that the greater part of this sum goes to enrich the French, Italians and other possessors of beautiful cities and splendid museums, and that, if American cities were as beautiful as Paris, their inhabitants would stay at home, thereby saving their millions for the benefit of their own country. It would be instructive, if it were possible, to ascertain how the money of American tourists in Europe is generally spent, but it is safe to say that the millions that they leave in Paris are exchanged to a much greater extent for clothes and dress-materials than for works of art; and that if Paris had no Louvre, and no boulevards, and no Champs-Elysées, the number of Americans who would go there to buy cheap and pretty clothes, jewelry and fancy goods would not be much diminished. Mr. Adams speaks of England, discerning there signs of exhaustion from a two years' war with a few thousand wretched farmers, and contrasts it with France, which, after defeat in a terrible struggle with the most powerful nation in the world, and the payment of an enormous indemnity, is now the richest nation in Europe, and, as he says, has lent four hundred million dollars in London during the depression of the last year; but, although London has no boulevards, and no very charming public art, more American money is probably spent there than in all the other European cities put together. That a beautiful city like Paris, and, still more, kind and considerate manners, like those of the Parisians, attract visitors and customers, as they have been attracted to Paris for something like two thousand years, is certain; but whether New York can supplant Paris simply through the efforts of an Art Commission remains to be seen.

MR. ADAMS speaks of the Greeks in a cynical manner which will not please artists. According to him, the Greeks were, above all, men of business, carrying their commercial sagacity even into their art. Their temples, as he tells us, were, to a great extent, advertisements for their cities, standing, usually, on hills, where they could be seen to advantage, and built of dazzling white marble, made more brilliant, occasionally, by gilding and colors. Their construction, although costly at the outset, was, in the end, economical, for the trabeated structure needed little or no repair. "It was the most refined," Mr. Adams says, "the most effective and the cheapest form of advertising ever devised, and its success has been commensurate with its deserts. I venture to assert that no investment ever yielded such a large return through so long a period as that made by Pericles on the Acropolis." We think that there are other architectural investments which have yielded a much larger interest than those on the Acropolis, although not, perhaps, for so long a period; but, sagacious as Pericles probably was in business matters, it is hardly credible that he could have looked forward to the curiosity of American tourists for providing an income on his outlay, and the student of history will not forget that, within about thirty years after the completion of the Parthenon, the Athenians had been totally and repeatedly defeated on land and sea, their fleet utterly destroyed, their city entered in triumph by a

hostile army, and its fortifications demolished, as a consequence of a war brought on, to a great extent, by the resentment of the other Greeks at their ostentatious magnificence.

WE should be far from wishing to argue against the beautifying of cities, as well as of private habitations, and of the persons who live in them; but we have never yet seen a man or a woman, or a house or a city, adorned with the view solely of attracting attention, that seemed to us beautiful. On the contrary, beauty for the sake of beauty, not for the sake of advertising, is the only kind that has ever been found acceptable to the world, and it is as difficult to believe that Phidias and Ictinus built and carved for the sake of advertising themselves or any one else as it is to comprehend how Pericles should have foreseen a stream of rich tourists, coming to visit the ruins of his temples after they had been devastated by twenty-two centuries of war and neglect. Mr. Adams thinks that the business-like Greeks troubled themselves very little about the inhabitants of their temples, but he does not explain why, in this case, the Athenians should have made their goddess of gold and ivory, instead of painted wood, which would have been much cheaper, and, as the statue was not visible from a distance, equally valuable for advertising purposes. Moreover, if, as he says, "the Greeks were never emotional at a loss," why should one of their most beautiful temples have been put on the uninhabited cliffs of Sunium, where the sailors could see it as they left home, and on their return, but where it was useless for advertising purposes? It is certain that the worship of the ancient gods had lost much of its sincerity at the time when the most splendid temples were raised to them, but it does not follow that these temples were mere pretences, intended only as an excuse for architectural display; and those who are trying to do something to cultivate beauty, and the contentment and happiness which beauty can give, in our domestic and public life, will do best to dismiss at once the idea of advertising, or of attracting tourists, and devote themselves to the only source from which art has ever sprung, the expression in permanent materials of some emotion. The emotions so expressed may vary almost infinitely, from the affectionate cherishing of the memory of friends which fills France with beautiful monuments to the dead, or the feeling of power and responsibility which inspires the Florentine or Genoese palaces, to the unquestioning faith in immortality and angelic guardianship which gives the modern religious art of Russia its singular charm; but without sentiment of some kind there can be no art. With us, the difficulty has been that, instead of expressing our own sentiments, we have copied other people's expression of sentiments with which we have little or no sympathy. No modern, for instance, can enter fully into the passion for the human form, and, perhaps, into the appreciation of the subtleties of outline of which the human form presents the highest example, which were familiar to the Greek, surrounded from infancy with semi-naked people, trained to the most perfect physical development; and modern sculpture of the nude lacks, in consequence, the antique grace. On the other hand, the Greeks, whose sympathies were not cultivated by a religion of love and self-sacrifice, were incapable, probably, of understanding, much more of producing, the marvels of heavenly expression which we find in the works of the early Italian painters, accompanied with very incorrect drawing of the outlines of the body, which the artists regarded as a thing to be despised and kept in subjection. We, perhaps, are as far, at present, from being able to rival the spirituality of Ghirlandajo and Fra Angelico as the purity and elegance of the antique; but there are plenty of characteristic American sentiments which no one else has tried to express, and which we can express better than any one else, if we will only try. No people have a quicker appreciation of truth to nature than the Americans, or are freer from conventional prejudices, and the artist who renders his subject faithfully, in painting or sculpture, is sure of his reward here. Then, for an artist sufficiently developed to see the beauty of his subject, as well as to represent it truthfully, we have the most beautiful models in the world. Nowhere can there be found such variety of unaffected grace in outline and movement, such ease and sincerity, as among our children and young girls; and, for the greatest artists of all, who can perceive and represent what goes on in the hearts of their subjects, we have still left much of the unselfishness and noble aspiration on which the Republic was founded. Any one, therefore, who feels himself capable of adding to the artistic treasures of his country, not as a means

of advertising it or himself, but for the sake of representing to others the American traits which he best appreciates, has a wide choice of fields; and if he succeeds in any, he may be sure that his countrymen will not be ungrateful.

THE Boston Museum of Fine-Arts has received, and is arranging in place, a large collection of Classical antiquities, purchased with the aid of friends of the Museum, and including a great number of Greek terra-cottas, with bronzes, marbles and jewelry, and about a hundred Greek vases. Naturally, the task of arranging such a collection is a long one, and it is not impossible that it will not receive its final form until it is placed in the new galleries to be built on the Fenway; but in the meantime, it will be all the more accessible to the multitudes who will wish to see it.

THE Municipal Art League of New York proposes to set up an artistic electric-light standard on one of the "islands" which, following the example of London, are to be established in the middle of crowded streets, to divide the traffic. Apart from the artistic decoration of these islands, they will be of great advantage to the foot-passengers in the crowded streets of New York, and, in a straight street, even if it is comparatively narrow, they form much less of an obstruction than might be supposed. We can very well remember London when there was nothing of the kind there, and to cross Piccadilly, between Regent Street and Bond Street, in the middle of the day, was an undertaking which required time and circumspection, and was very dangerous for children or infirm people. Now, although Piccadilly is no wider than it was then, and is even more crowded, there is no difficulty in crossing it anywhere, and at any time, by taking advantage of the "islands" which are scattered at short intervals through the middle of it, and which not only afford a refuge for the nervous pedestrian half way across the street, but, what is still more important, divide the stream of vehicles, so that the traveller has only to look in one direction for approaching danger, this direction being reversed on each side of the island. What could be done with the surface tracks in Broadway, if islands were put in the middle of the street, we will not undertake to say; but Fifth Avenue, at least, could be furnished with them, and an artistic standard for electric lights in the middle of each might be made to contribute materially to the attraction of the Avenue.

THE newspapers give the interesting piece of information that the members of the Imperial Court of China, feeling, no doubt in view of their recent calamities, the need of being more assiduous in worshipping at the tombs of their ancestors, have resolved to try to raise funds to build a railroad from Pekin to the site of their ancestral tombs, so that, whenever they feel an impulse to commune with the spirits of their fathers, they can take the first train, returning to their duties without unnecessary loss of time. What the spirits of the deceased will say to having the inventions of the "foreign devils" shrieking over their graves is, perhaps, unimportant, in view of the edifying piety of their descendants. A little study of the geography of the affair makes it, however, still more edifying. The ancestors of the reigning house of China were, as every one knows, Mantchu Tartars, and dwelt at Moukden, in Manchuria, where their graves still remain. Now Moukden is in, or near, the province which Russia practically controls, and not very far from the line of the great Siberian Railway. It is obvious that the Russian railway managers would be glad of a line connecting their road with the great city of Pekin, but what seems to Americans the absurd jealousy of the other Powers would undoubtedly prevent Russia from building any railways in China, outside of Manchuria; so that the sudden sentimentalism of the Imperial Court comes just at the right moment for providing the desired connection between Pekin and Moukden, without any interference on the part of the Russians. It is evident that the Powers cannot prevent the Chinese from building a railway within their own undisputed territory, for a peaceful and laudable purpose; and if the Russians should be so pleased with this beautiful example of filial affection as to help along the enterprise by advances of money, it is difficult to see how any one can complain. Meanwhile, when Pekin and Moukden are once joined by a railway, it will be very natural for the Chinese to ask the favor of a connection with the Siberian line, and the road from St. Petersburg to Pekin will then be complete.

NOTES ON IRON AND STEEL CONSTRUCTION.¹—IV.

HAVING observed the properties of various sections, which included the section modulus, and having also determined the various formulas for calculating the bending-moment in beams, it is now in sequence to note the application of these several principles.

In order that a beam shall be sufficiently strong to carry the load, the external moments about any point in the beam must be equal to the internal moments. The external moment, as previously explained, is called the "bending-moment," while the internal moment is termed the "resisting-moment"; in this exists the equation $M=M_1$, where M equals the bending-moment and M_1 equals the resisting-moment. The resisting-moment of any beam-section is obtained by multiplying the section modulus of the section by the allowable unit stress, or, as it may be designated, $M_1=Q S$, in which Q equals the section modulus, and S the allowable unit fibre-stress. It is usual

$$M=\frac{WL}{8}, \text{ or } \frac{20,000 \times 20 \times 12}{8} = 600,000 \text{ inch-pounds;}$$

then Q equals $\frac{M}{S}$, or $600,000 \div 18,000 = 33\frac{1}{3}$, which is the value required for the section modulus. From almost any steel-mill's hand-book, under the table giving properties of I-beams, it will be noted in the column headed "Section Modulus," that there are two beams that may conveniently be used; one is a 10-inch beam having a section modulus of 35.7, and the other is a 12-inch beam having a section modulus of 36.7; it is evident, however, since the 12-inch beam weighs only 31½ pounds as compared with the 10-inch beam, which weighs 40 pounds, that the 12-inch beam is far preferable—in fact, there is a saving of 25% in weight, and an increase of approximately 3% in strength. Besides, there is much gained in stiffness.

It is the usual practice in steel construction to use an allowable unit fibre-stress of from 15,000 to 20,000 pounds. The usual practice for medium steel, where the beams are subjected to a statical load, is to use an allowable unit fibre-stress of from 15,000 to 16,000 pounds, while if moving loads are apt to occur, or the beams likely to be subjected to sudden stress or shocks, 12,000 pounds per square inch is considered conservative.

In calculating the bending and resisting moments of beams, and equating M with M_1 , the bending-moment must always be obtained in inch-pounds, for the result found by multiplying the section modulus by the safe unit fibre-stress gives the resistance of the beams in inch-pounds.

In selecting I-beams for floor-systems, it is the practice never to use a beam less in depth than one twenty-fourth of the span, or never of less depth in inches than one-half the span in feet. By following this rule excessive deflection is avoided, and the deflection that occurs is not sufficient, when the ordinary allowable unit fibre-stresses are used, to produce plaster cracks.

Where head-room is an object, or where architectural considerations prevent the use of beams fulfilling these conditions, the beams must be calculated for a low unit fibre-stress, and the deflection determined by the following table:—

FORMULAS FOR DETERMINING THE MAXIMUM DEFLECTION FOR BEAMS OF UNIFORM SECTION.

Method of Loading.	Deflection in inches.
Fixed at one end, concentrated load at the other.	$\frac{W l^3}{3 E I}$
Supported at both ends, concentrated load at centre.	$\frac{W l^3}{48 E I}$
Fixed at one end, uniformly loaded.	$\frac{W l^3}{8 E I}$
Supported at both ends, uniformly loaded.	$\frac{5 W l^3}{384 E I}$
Fixed at one end and loaded with a right triangular load, the apex at the support.	$\frac{W l^3}{15 E I}$
Supported at both ends, loaded with a triangular load apex at the centre.	$\frac{W l^3}{60 E I}$

W =load in pounds; l =length in inches; E =29,000,000; I =moment-of-inertia.

If the deflection found by calculation exceeds one thirty-second of an inch for each foot of span, or one three-hundred-and-sixtieth part of the span, a beam of heavier section should be employed, and thus a lower unit fibre-stress obtained.

In laying out the floor-plan for a building of the skeleton-construction type, all that is necessary is a mere diagrammatic drawing showing the location of the columns and the centre lines of the principal beams and girders, together with the sizes that have been calculated to meet the requirements of the particular case. The connection of the various beams one with the other, and to the girders, and the connection of the girders to the column require careful study. The beams must be so secured to the girders that the connection will carry the maximum reaction at their ends. The connections are made up of two angle-iron clips, which are held to the web of the beam by bolts, and which in turn hold the beam in place to the web of the girder by similar bolts. These connections are so frequently used that they have been standardized by the several steel-mills, as shown in Figure 20. Since the transverse strength of a beam depends directly upon its span, it is evident that standard connections can only be used where the girders have the usual span, and any standard connections which might be adopted are only

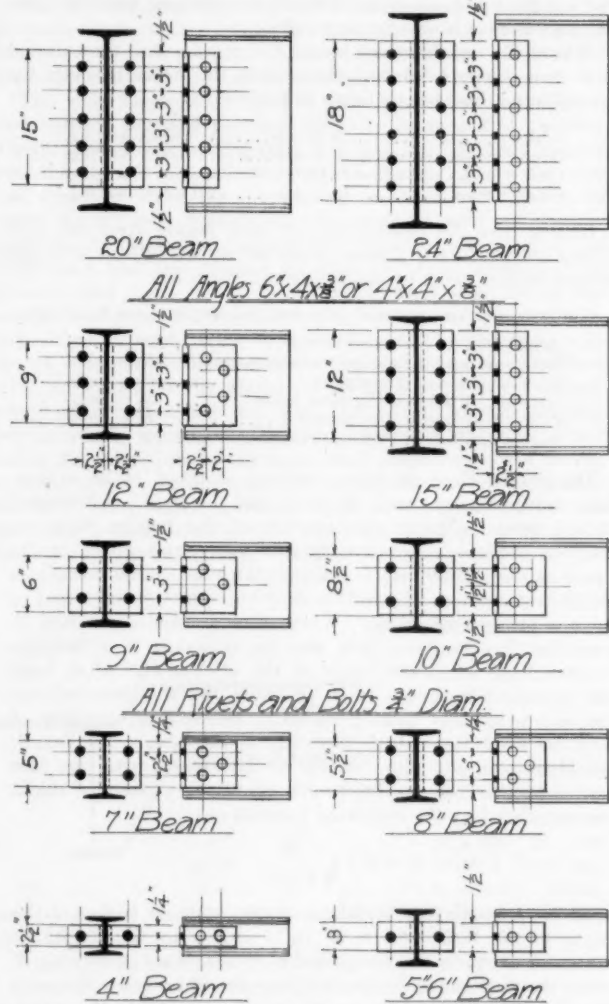


Fig. 20.

in calculating the strength of floor-beams and girders to have first calculated the bending-moment, or M , and to have assumed the allowable unit fibre-stress. From these it is common to figure the section modulus required in the beam section. This is readily done by transforming the former equation to $Q=\frac{M}{S}$; having obtained the value Q , all that is necessary is to refer to any of the tables published by the rolling-mills, and to select therefrom the most economical section that will fill the requirements. Where limiting conditions, such as head-room, or fireproof construction, do not exist, the deepest beam having the least weight and the required section modulus should be adopted.

Example.—A beam having a span of 20 feet supports a uniformly distributed load of 20,000 pounds. Assuming that the safe unit fibre-stress is 18,000 pounds, determine the most economical beam.

Solution:—

¹ Continued from No. 1363, page 45.

secure when the spans of the beams exceed the minimum. The following table, which may be found in almost all of the steel-mill hand-books, gives the minimum spans for which standard

THE MINIMUM SPAN FOR I-BEAMS WHEN STANDARD CONNECTIONS ARE USED.

Size of beam.		Minimum span.	Size of beam.		Minimum span.
Depth.	Weight.	Feet.	Depth.	Weight.	Feet.
20	90	20.5	9	27	10.5
20	80	18.0	9	23½	7.5
20	75	16.5	9	21	9.0
20	65	18.0	8	27	6.0
15	75	16.0	8	22	9.0
15	66½	15.0	8	18	7.5
15	60	16.0	7	20	7.0
15	50	15.5	7	15	6.5
15	42	14.0	6	16	7.0
12	55	13.5	6	13	6.5
12	40	12.0	5	13	5.0
12	31½	10.5	5	9½	4.5
10	40	12.0	4	10	2.5
10	33	11.5	4	8	2.5
10	30	9.0	4	6	2.5

connections can be used. In designing the standard connections an allowable unit shearing-stress of 9,000 pounds was used, while an allowable unit bearing-stress of 18,000 pounds was employed, both values being required in figuring the strength of the bolts in resisting shear, and the bearing of the metal around the bolt-holes in resisting crippling. Where the beam is of a span shorter than the minimum, a special connection must be designed. This can readily be accomplished by calculating the greatest reaction and providing enough bolts to resist the stress.

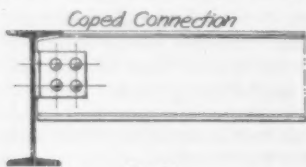


Fig. 21.

Sometimes the connecting-angles are riveted to the beams. In framing I-beams to girders the top flange of the beam may be either flush with the flange of the girder, or dropped below the fillet connecting the flange and web of the girder. The latter practice is usual, as it saves coping the beam as designated in Figure 21. The expense of cutting away the upper flange of the beam to fit the flange of the girder adds considerably to the cost of the work, and this method of framing is only employed where architectural considerations require that the beam shall be flush upon the upper flanges. It is the practice in the erection of the work in the field—that is, the assembling of the beams making up the floor-system, for the erector to place the beams in position, putting one or two bolts in a connection and proceeding over the entire work in this manner, going over each connection finally, and putting in all the bolts. In order that this work may be done properly requires rigid inspection, for many bolts are left out entirely, and the majority of those in place are seldom bolted tight. The inspector in going over this work should mark each connection that is improperly bolted with a chisel, chalk and paint being inadequate, as unscrupulous workmen are liable to erase such marks rather than bolt the connection properly.

The tail-end of each steel floor-beam, that is, the end which has its bearing upon the wall, should be securely anchored into the wall, and each beam should have a sufficient bearing upon the masonry. The common form of anchor used for the tail-end of beams is what is known as the United States Government anchor, which consists of a piece of ¾-inch round iron, bent to the form shown in Figure 22. This anchor is placed through the end of the web of the I-beam, and is securely built into the stone or brickwork. Where two beams are placed opposite to each other on a partition-wall,

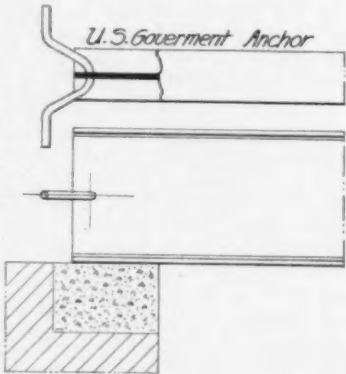


Fig. 22.

they are sometimes anchored as shown in Figure 23 by means of a wrought-iron strap consisting of a piece of 2" x ¼" bar, punched on the ends, and bolted to the webs of each beam. The difficulty in the use of this system of anchorage upon a

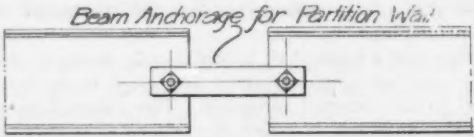


Fig. 23.

partition-wall lies in the fact that it is practically impossible to construct a building so accurately or to obtain the steelwork punched to such a nicety that the straps can be made in the shop—the hole in one end of them must necessarily be punched or drilled in the field. While this means of anchoring two systems of floor-beams bearing upon a partition-wall is excellent, the practical objections are difficult to overcome, and the Government anchor is usually resorted to.

Where the ends of steel beams rest upon a wall they should have from a 6-inch to 12-inch bearing, the usual bearings for the different sized beams being as follows:—

Under.....	6 inches.....	6-inch bearing.
Over 6 inches and under 8 inches.....	8 inches.....	8-inch bearing.
Over 8 inches and under 12 inches.....	10 inches.....	10-inch bearing.
Greater than.....	12 inches.....	12-inch bearing.

In any case the bearing of the steel beams upon the wall should not produce a greater stress per square inch of bearing-surface than is given by the following table:—

SAFE BEARING PER SQUARE INCH FOR BRICKWORK AND MASONRY.

Brickwork laid in cement-mortar.....	200 pounds.
Brickwork laid in lime and cement-mortar....	150 pounds.
Brickwork laid in lime-mortar.....	100 pounds.
Concrete, of the best Portland-cement.....	150 pounds.
Rubble masonry in lime-mortar.....	80 pounds.
Rubble masonry in Portland-cement mortar..	160 pounds.

The brickwork in the above table is assumed to be of first-class workmanship, well bonded, and of hard, well-formed burned brick. Where the bearing of the bottom flange is likely to produce a pressure greater than those given in the above tables, either steel bearing-plates or stone templates should be used upon the wall to distribute the pressure and in order to prevent crushing. When stone templates are used to distribute the pressure, they may be subjected to a bearing-pressure from the lower flange of the steel beams of at least 500 pounds per square inch, provided the thickness of the template is not less than 8 inches. Where bearing-plates of steel are used underneath the ends of the beams, the length and breadth of the plate should be determined from the safe bearing-pressure of the brickwork or masonry, and the thickness calculated by the following formula:—

$$t = .87 (l - w) \sqrt{\frac{W}{S w_1 l}}$$

in which t equals the thickness of the plate in inches, l the length of the bearing-plate at right angles to the length of the beam, w equals the flange-width of the beam in inches; W equals the reaction at the point of support in pounds; S equals the allowable unit stress in the plate; w_1 equals the width of the plate, or the dimension parallel with the length of the beam—that is, the bearing on the wall in inches.

Example.—The end of a 20-inch girder of I-beam section, and having a flange-width of 6 inches, has a 12-inch bearing upon a wall built of good hard bricks laid in cement-mortar, the reaction at the end amounting to 25,000 pounds. It is required to determine the size and thickness of the bearing-plate.

Solution.—From the table given above it is ascertained that good brickwork in Portland-cement mortar will support 200 pounds per square inch; since the bearing-length of the plate will be 12 inches, the allowable load for each inch in the width of the plate will be 12×200 , or 2,400 pounds; dividing 25,000 pounds by 2,400 pounds it is found that the width or length of the bearing-plate perpendicular to the axis of the girder is equal to $10\frac{1}{2}$ inches; the size of the plate has then been found to be $12'' \times 10\frac{1}{2}''$; and it is required to determine the thickness. Substituting in the formula, when S , or the safe allowable fibre-stress in the plate equals 16,000, it is found that

$$t = .87 (10\frac{1}{2} - 6) \sqrt{\frac{25,000}{16,000 \times 12 \times 10.5}}$$

or .605, which is practically a $\frac{5}{8}$ -inch plate. The following table gives the usual size and thickness of bearing-plates for the different sized beams and the safe pressure at the end of the beams in tons that they will carry:—

TABLE OF STANDARD BEARING-PLATES FOR I-BEAMS GIVING THE SAFE END-REACTION AT THE END OF THE BEAM IN TONS, WHEN THE SAFE-BEARING ON THE MASONRY EQUALS 100 POUNDS PER SQUARE INCH.

Size of beam.	Size of standard plates for templates.			Safe end-reaction.
	Length.	Width.	Thickness.	
20"	12"	16"	$\frac{3}{4}$ "	9.6
15"	12"	12"	$\frac{3}{4}$ "	7.2
12"	10"	10"	$\frac{3}{4}$ "	5.0
10"	10"	8"	$\frac{3}{4}$ "	4.0
8"	8"	8"	$\frac{3}{4}$ "	3.2
6"	6"	8"	$\frac{3}{4}$ "	2.4

The size of a stone template depends upon the allowable pressure on the brickwork. The template should never project in any direction beyond the bearing-plate or flange of the beam more than three-fourths of the thickness of the stone.

The steel beams forming the main support of a fireproof-floor system are tied together laterally by means of tie-rods. These tie-rods are from $\frac{5}{8}$ inch to $\frac{3}{4}$ inch in diameter, and are placed from 4 to 6 feet from centre to centre. There are several empirical rules for the spacing of these rods; one is, to make the distance from centre to centre of rods not greater than twenty times the flange-width; another, which is not so reasonable, that the distance between the rods should not be greater than eight times the depth of the beam. Since the lateral resistance of a beam does not depend upon the depth, to any extent, it would seem that the first rule is the most consistent. The tie-rods should be placed as nearly coincident with the centre of the thrust of the arch as possible, though where segmental arches are used, the tie-rods should not project below the crown of the arch; ordinarily they are placed below the centre-line of the beam, and often very close to the bottom flange. In any case the steel rods must come within the fireproofing material, otherwise they will be exposed to the heat of a possible conflagration, and the principal purpose of their instalment abrogated. Usually the thrusts of the arches

in adjacent bays or panels counterbalance each other, and tie-rods are only really required in one panel to take the thrust of the end arch from the walls, or from the beam adjacent to the walls. They are, however, neces-

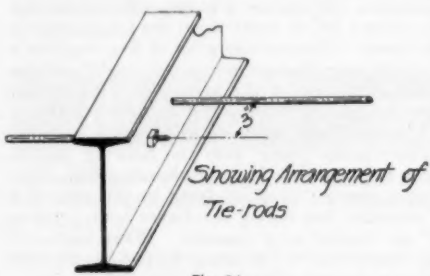


Fig. 24.

sary to prevent lateral deflection of the beams in case of fire and during construction.

Since the tie-rods secure each beam to the other laterally, it is necessary to provide holes in the webs for the rod attached to the beam on the one side, and also for the rod attached to the beam on the other side. These holes should not be farther apart than 3 inches, as designated in Figure 24.

Where brick arches are used the horizontal thrust of the arch is readily found by the formula

$$p = \frac{1.5 WL^2}{r}$$

in which p equals the thrust of the arch in pounds for each lineal foot, W equals the load in pounds per square foot of floor-surface; L equals the distance in feet between beams, or the span of the arch, and r equals the rise of the arch in inches. If the I-beam has a sufficient lateral resistance to bending to take up this thrust, no tie-rods need be used. The calculation for the thrusts may be applied in determining the distance apart of the tie-rods. A beam supported laterally by a number of tie-rods is semi-continuous, and the distance between the supports may be determined for I-beams and channels by the following formulas:—

$$L = \sqrt{\frac{CAw}{p}}$$

in which L equals the distance between tie-rods in feet; C is the constant, which for I-beams is 1,300, and for channels is 1,650; A is the sectional area of the beams in square inches; w the width of the flange in inches, and p is the lateral pressure in pounds per lineal foot of the arch.

Example.—A brick arch having a span of 4 feet, and a rise of 6 inches, is supported upon 12-inch I-beams having a sectional area of 16 square inches; provided the load upon the floor is 300 pounds per square foot, what distance apart should the tie-rods be spaced?

Solution.—The horizontal thrust of the brick arch per lineal foot, or p , equals $\frac{1.5 \times 300 \times 4 \times 4}{6}$, or 1,200 pounds.

Then substituting in the formula $L = \sqrt{\frac{1,300 AW}{p}}$, it becomes

$$L = \sqrt{\frac{1,300 \times 16 \times 6}{1,200}}, \text{ or } 10.2 \text{ feet, which is the desired result, or distance between centres of tie-rods.}$$

It is sometimes necessary to proportion steel beams to withstand the effects of a suddenly applied load; such a condition often exists where the beams support the mechanism at the head of an elevator-shaft. It is considered by the best practice that a load suddenly applied produces a strain upon a beam or girder equal to twice the amount that the same load would produce if it were static. That is, a suddenly applied load should only be one-half as great as the safe statical load. Where the load falls some distance upon the beam the stress produced in the beam is very great, due to the impact, and the usual method employed to determine the resistance of the beam under such a severe condition is to equate the effect of the falling load to the effect of a statical load applied at the same position on the beam, and from these data determine the required section modulus. The formula used for determining the amount of the statical load that would produce the same effect as a certain falling load is as follows:—

$$Ws = W \left(1 + \sqrt{\frac{2mh}{d}} + 1 \right)$$

in which Ws equals the statical load that would produce an equivalent effect; W the falling load; h the height in inches through which the load falls; d the deflection of the beam, in inches, that would be produced by the load W if at rest, while m is obtained from the following formula:—

$$m = \frac{1}{1 + \frac{L}{2.06W}}$$

in which L equals the weight of the steel beam and the entire dead load which it carries.

It is often necessary in building-construction to use several I-beams side by side to carry a load so great that one beam would be insufficient. Such girders are especially used for lintels for supporting brickwork over openings. Where there are no openings above the girder, good brickwork arches itself, and the load upon the girder is triangular in shape, the altitude of the triangle being taken at one-third the span. Where two or more I-beams are used together and are subjected to the same load, they should be tied together at intervals of from 6 to 8 feet, and separators should always be provided at the ends of such girder, and also wherever a concentrated load is located. Where a girder composed of two I-beams is used in floor-construction, and the floor-beams are framed into it, care must be taken to see that the connections do not interfere with the separators, and, wherever possible, separators should be placed adjacent to the connections. It is customary in making such connections to bolt the angles attached to the beam on the one side to the web of the one beam, while the angles attached to the beam on the other side are bolted to the web of that beam,—that is, the bolts securing the connections to the girder do not extend through the girder. It is necessary, therefore, that a girder composed of two I-beams, and required to support the ends of floor-beams, should be shipped in pieces and put in place in the field.

M. M. SLOAN.

[To be continued.]

A TRIPOLITAN PETRIFIED FOREST.—Describing his journey in the forbidden desert in the hinterland of Tripoli, Mr. Dodson, who has recently returned to England, says that one of the most notable things on the journey to Murzuk was the great petrified forest, which his party passed through. For ten hours they travelled across an area of petrified trees, varying in circumference from seven feet to a few inches. Every branch of this forest was, of course, lying prone, and this, together with the presence of marine shells, showed that this part of the Great Sahara had at one time been submerged.—*Exchange.*

OWNER'S RESPONSIBILITY FOR PAYMENT OF PROVISIONAL SUMS.

IN the Court of Appeal on the 17th inst. the appeal case *Hobbs vs. Turner* was heard. According to the report in the *Times*, the plaintiff, who was a metalworker, sued the defendant, a building-owner, for £27 10s., for metalwork supplied for a house which the defendant was having built for him by a builder under the supervision of Mr. J. L. Williams as architect. The contract under which the house was being built was made in September, 1898, and was in the form settled and issued by the Royal Institute of British Architects. By the contract the builder, in consideration of a sum of £4,700, agreed, upon and subject to the conditions in the schedule to the contract, to execute and complete the works described in the specification. Payment for the work was to be made by instalments as the work progressed, according to the certificate of the architect. Clause 28 of the contract, so far as material, was as follows: "The provisional sums mentioned in the specification for materials to be supplied or for work to be performed by special artists or tradesmen, or for other works or fittings to the building, shall be paid and expended at such times and in such amounts and to and in favor of such persons as the architect shall direct, and sums so expended shall be payable by the contractor without discount or deduction or . . . by the employer to the said artists or tradesmen. The value of works which are executed by the contractor in respect of provisional sums, or in additional works, shall be ascertained as provided by Clause 13. At the settlement of the accounts the amount paid by the contractor to the said artists or tradesmen, and the said value of such works executed by the contractor, shall be set against all such provisional sums or any sum provided for additional works, and the balance shall be added to or deducted from the contract sum."

The specification contained this clause: "Provide and fix iron balcony-railings to design (allow £20 for this, irrespective of carriage, fixing and profit)." It was not suggested that there was anything in the specification to alter the legal rights of the parties. The architect selected the plaintiff as the person to supply the ironwork for the balconies, and the builder asked the plaintiff to send designs to the architect, who rejected them, and sent the plaintiff his own designs; and the builder having given measurements and quantities, the ironwork was sent to him (the builder) and the goods were invoiced and debited to him. Later on, in November, 1899, the builder wrote to the plaintiff asking him to send him his account, and he did so; but on December 9 the builder wrote saying that the architect would certify the amount direct to the building-owner (the defendant), and on December 14, 1899, the architect sent to the plaintiff a certificate addressed to the defendant certifying that the plaintiff was entitled to be paid £27 10s. for the ironwork. This certificate the plaintiff sent to the defendant, who kept it, making no reply. After this the plaintiff sent two or three times to the defendant for the money, of which the defendant took no notice. In October, 1900, when the plaintiff's solicitor wrote for payment, the defendant repudiated liability. The defendant alleged that he had a claim against the builder for bad work. Mr. Justice Kennedy gave judgment in favor of the plaintiff. The defendant appealed.

The Court dismissed the appeal.

The Master of the Rolls said that, in his opinion, the appeal should be dismissed. The contract was one which was not an unusual one at the present time, namely, the builder undertook to do certain portions of the work, and as to the other portions of the work provisional sums were specified. The specification contained this clause: "Provide and fix iron balcony-railings to design (allow £20 for this, irrespective of carriage, fixing and profit)." That threw them back upon the original central undertaking of the builder contained in the contract and the conditions. In consideration of the sum of £4,700 the builder agreed to execute and complete, subject to the conditions in the schedule to the contract, the works described in the specification. In the conditions and specification they found how that lump sum was to be distributed. They found that the builder was not necessarily to execute the whole of the work, but the building-owner might get other persons to do certain parts of the work, and as against the builder certain fixed sums only were to be paid out of the lump sum to those persons for that particular class of work. It was good sense that a sum should be fixed for each class of work which was not to be executed by the builder, but by some tradesman or artist designated by the architect. The building-owner—the defendant—had a discretion as to the person by whom this class of work was to be done, and he might agree to pay him any sum he pleased, but he could only allow as against the builder the fixed sum for each class of work. That being so, Clause 28 of the conditions seemed to him to contemplate payment for this class of work being made either by the builder or by the building-owner, and the last part was based on the hypothesis that part of the work might be done by the builder and part not done by him, and where any such work was not done by the builder the building-owner would be entitled to hold back the amount specified for that work. This clause was obviously framed upon the footing that the building-owner was looked for this particular class of work. In his opinion, when one looked at the whole of the contract taken together, and not relying upon any one particular clause, the proper inference as regarded this particular class of work was that it was intended that the building-owner, and not the builder, should be the principal. If the builder entered into a contract for any of this class of work he might make himself liable to the tradesman or artist; but, as he was acting

under the general scope of the contract, he would be acting as the agent of the building-owner and would create privity of contract between the building-owner and the tradesman or artist. That could only be got rid of by the tradesman or artist contracting with the builder in such a way as to debar himself from resorting to the building-owner. Nothing of that kind occurred here. What happened was that the plaintiff was put into relation with the defendant through the architect, and, though this was not clear, he understood that the order was given to the plaintiff by the architect. It was true that the invoice was sent to the builder, but the architect gave a certificate against the defendant, and not against the builder, and sent it to the defendant. His lordship did not intend to say anything about the point as to estoppel, nor was it necessary to decide whether, under Clause 28 of the conditions, the architect had authority to determine who was to pay as well as to whom payment should be made. It seemed to him, looking at the contract as a whole, that the initial liability of the defendant—the building-owner—in respect of this class of work was established, and that all the parties dealt upon that footing. The judgment was, therefore, right.

Lord Justice Romer agreed.

Lord Justice Mathew was of the same opinion. This was a question of fact which had been properly decided by the learned judge.—*The Architect.*

BOOKS AND PAPERS

IF the English-speaking race remains ignorant upon art, it cannot be the fault of the publishers of books, nor of the dealers in pictures. Book succeeds book, just as exhibition succeeds exhibition: They come, they come, immer, immer mehr, and at prices ranging from 10 guineas to 12 pence. Does this work for good as regards the culture of the people? Can a shilling book compass enough information to be of any real value, when we consider that it contains no less than eight illustrations, is well printed on good paper and neatly bound in cloth? This question may be answered by a short review of these "miniature books" upon painters.

Of course, the possibility of publishing these and even the more expensive "Great Masters" series at 5s. or 7s. 6d. must depend upon the fact that the authors of the voluminous 5 or 10 guinea books are willing to condense their works, and boil them down to 50 or 60 pages of a post 8vo volume. Also as a passport to efficient work, we have Mr. Williamson as an editor to the series. Naturally, some of the books are better than others, and Mr. Williamson's "*Fra Angelico*" leaves little to be desired as a handbook to San Marco, or as a simple book of reference. Of course it is not sufficient for the student, but the author gives a list of books upon the subject which will enable him to learn more. There is also a list of Fra Angelico's principal pictures scattered over Europe, and a very useful chronological table of the principal pictures of the painter's working years. These added to a clearly-written and concise history of the master's life is not a bad shilling's worth, and must, we think, work for good as regards culture, just as "penny poets" help the laboring population to a little enjoyment in a more or less uninteresting life. The present writer has seen a penny "*Shelley*" lying by the side of a carpet-factory girl to entertain her during the dinner hour. "Yes, she did love Shelley," she replied to a question. What matters it whether she understood him or not? The music helped her through many a dull hour, as it does the rest of us.

Mr. Williamson criticises Fra Angelico's art as well as his religion. He used art "as a means of imparting religious instruction," and thus gave it "its greatest dignity." He also "employed the talents which God had given him" to "their best advantage." "He knew that to be a saint was more in the eyes of God than to be an artist," and so, "the unity between these two phases of character was not impossible, as some persons have thought." Possibly, many a modern painter has felt this, and used as much fervor and prayer during his work as the great Dominican, only in a less obvious manner. Mr. Williamson suggests that the great "Crucifixion" at San Marco refutes the opinion that the painter ignored the study of the nude. On the contrary, he argues, Fra Angelico painted all that he touched with exquisite truth—flowers, dancing-figures, expressions of feeling as depicted upon the human face, little vistas of landscape—all was handled with loving care and exquisite sentiment. Perhaps the best example of the harmony of the Saint and the Painter may be seen in the dainty and exquisite dance of the angels in the "Last Judgment" in the Accademia at Florence.

In Mr. Staley's "*Watteau*," much remains to be desired, and notably, correction of French quotations and words. "Gave upon the market-place" is scarcely classic English; and the following may be cited as curious blunders due to the careless correction of proofs, or the printer. Audran living "during the old age of Louis IV." The "*Chateaux de Merdon*," for "*Chateau de Merdon*"; "*Le défait de Goltath*"; "*Abigail que apport les vivres*"; "*Ils n'ont pas l'air de croquer à leur bonheur*"; and last, not least, the frequent use of

¹ "*Fra Angelico*," by George C. Williamson; "*Watteau*," by Edgecumbe Staley; "*Romney*," by Rowley Cleeve. Bell's Miniature Series of Painters. 1s. London. 1901. "*The Art of Illustration*," by H. Blackburn, revised by J. S. Eland. New Edition, 98 Illustrations, with a chapter upon Colored Illustration. John Grant, Edinburgh.

"coiffeur" for *coiffure*. The ladies wore *coiffeurs* on their heads! and we are told of the "beautiful *coiffeurs*" of the period! Why, too, need the author speak of "details of *mode* and texture," and "interesting *toilettes*"; language which he borrows from the drapers' and dressmakers' lists.

In spite of these blemishes, and a certain want of sympathy for Watteau, the book is a pretty little volume well illustrated, indeed the illustrations are the best part of the work; for although but small, 3" x 4", they give a very fair idea of the grace and elegance of the painter's compositions; they remind one of much of the printed Worcester, the makers of which reproduced many of Watteau's engravings on their china. Among the list of chief books upon Watteau the author gives Walter Pater's "*Imaginary Portraits*";¹ but Mr. Staley has not imbibed the poetic and sympathetic tone of the Oxford Don's charming sketch of Watteau and his pupil, Jean Baptiste Pater.

The Romney volume also contains some pretty illustrations, but the letterpress consists chiefly of the life of Lady Hamilton. This is written with much more detail than is usual or necessary, with the result that the volume cannot be given to the young; and why we need know the details of the lady's love affairs in order to account for the fascination of her face seems quite unnecessary.

Mr. Cleeve considers Romney a better draughtsman than either Reynolds or Gainsborough, but as colorists he places the latter first of the three — indeed with our author, the President fares badly, and quite takes a back seat. No doubt there is great charm in the coloring of Gainsborough, but it has not the pureness of tone of a good Reynolds; and when we consider his work from the point-of-view of strength, he does not approach Reynolds. Romney, too, was a fine colorist; his handling of a white muslin gown is unrivalled, but we surely should find no difficulty in putting Reynolds as the first of British painters if we saw his best portraits and the best of Gainsborough's and Romney's side by side with those of Rubens, Velasquez and Rembrandt. The President would stand the strain; but it is more than doubtful whether the work of his rivals would, even at their best. The chief beauty of Romney's work is its directness; its bad qualities are thinness of tone, and sometimes an effect of careless hurry. But there is no doubt that there is a marvellous charm about the mere *technique* of such a work as "Mrs. Mark Currie" (National Gallery, London), and Romney was more fortunate than his rivals in the fashions, which had become simpler, more easy, and, above all, the hair was dressed far more becomingly.

The new edition of Mr. Blackburn's book is brought up to date, and for those engaged in drawing for the press is invaluable, both in its "hints" and instructions, and for its illustrations. It describes all the modern processes, and gives examples of reproductions of most of them. It is well printed, and, barring its weight, which is inevitable, is altogether a charming as well as a most useful book for draughtsmen.



[Contributors of drawings are requested to send also plans and a full and adequate description of the buildings, including a statement of cost.]

SECTION, PLAN AND ELEVATION: UNITED STATES POST-OFFICE AND COURT-HOUSE, ELMIRA, N. Y. MR. JAMES KNOX TAYLOR, SUPERVISING ARCHITECT, WASHINGTON, D. C.

STAIRCASE DETAIL IN THE SAME BUILDING.

DETAIL OF FRONT ENTRANCE TO THE SAME BUILDING.

HOUSE OF D. E. NORTON, ESQ., EUCLID AVE., CLEVELAND, O. MR. CHARLES F. SCHWEINFURTH, ARCHITECT, CLEVELAND, O.

[The following named illustration may be found by reference to our advertising pages.]

HOUSE ON THE AVENUE MALAKOFF, PARIS, FRANCE. M. LE VOISVENEL, ARCHITECT; — HOUSE ON THE RUE DE LA CONVENTION, PARIS, FRANCE. M. LEGRIEL, ARCHITECT.

This plate is copied from *La Construction Moderne*.

[Additional illustrations in the International Edition.]

DINING-ROOM: HOTEL MANHATTAN, NEW YORK, N. Y. MR. H. J. HARDENBERGH, ARCHITECT, NEW YORK, N. Y.

INTERIOR DOOR: HOTEL MANHATTAN, NEW YORK, N. Y.

STREET FRONTS, BRUSSELS, BELGIUM: TWO PLATES.

THESE plates, reproduced from *L'Emulation*, afford an admirable warning against restlessness in design.

¹ See *American Architect*, September 10, 1887.

NOTES & CLIPPINGS

ANDREW CARNEGIE'S GIFTS. — The *N. Y. Times* makes the following tabulation of Mr. Carnegie's public benefactions: Carnegie, Andrew, New York, gifts for a technical school at Pittsburgh, Pa., \$2,000,000, with promised endowment of at least \$25,000,000; to the Government of the United States, to establish in Washington a university for higher education, \$10,000,000; to the Carnegie Institute, Pittsburgh, \$1,000,000; to Cooper Union, New York, \$300,000; Upper Iowa University, Fayette, Iowa, \$225,000; to Bellevue Medical College, New York, \$76,000; to Carnegie Laboratory, New York, \$50,000; to Aurora (Ill.) College, \$50,000; New York Educational Alliance, \$2,500. Besides these gifts by Mr. Carnegie there remain his gifts to public libraries. In the *Library Journal* for January of this year is given a table of such gifts which shows the immense total of \$13,813,000. This sum was distributed among 153 places in thirty-three States, Porto Rico, Canada, and British Columbia, the largest individual items being \$5,000,000 for branch libraries in New York City, \$1,000,000 to St. Louis for the same purpose, and a like sum for the endowment of the Carnegie libraries of Bradford, Duquesne, and Homestead, in Pennsylvania. The record is as follows: —

Aberdeen, S. D.	\$15,000	Macon, Ga.	\$20,000
Akron, Ohio	70,000	Madison, Ind.	20,000
Alameda, Cal.	35,000	Madison, Wis.	75,000
Atlanta, Ga. (additional)	20,000	Mankato, Minn.	40,000
Aurora, Ill.	50,000	Marion, Ind.	50,000
Austin, Minn.	12,000	Mattoon, Ill.	20,000
Beloit, Wis.	25,000	Miles City, Mont.	10,000
Bloomington, Ill.	15,000	Moline, Ill.	37,000
Bradford, Duquesne, and Homestead Carnegie Libraries, Pa.	1,000,000	Montclair, N. J.	30,000
Burlington, Vt.	50,000	Montgomery, Ala.	50,000
Canandaigua, N. Y.	10,000	Montreal, Can.	160,000
Canon City, Col.	10,000	Mount Vernon, N. Y.	35,000
Canton, N. Y.	30,000	Muncie, Ind.	50,000
Canton, Ohio	50,000	Nashville, Tenn.	100,000
Carbondale, Pa.	25,000	Neeah, Wis.	10,000
Carrollton, Ill.	10,000	New Rochelle, N. Y.	25,000
Catskill, N. Y.	20,000	New York City	5,000,000
Charleston, Ill.	18,000	New York Press Club	5,000
Cedar Rapids, Ia.	75,000	Niagara Falls, N. Y.	50,000
Centralla, Ill.	15,000	Norristown, Pa.	50,000
Charlottesville, W. Va.	25,000	Norfolk, Va.	50,000
Chatham, N. Y.	15,000	Norwalk, Conn.	20,000
Clinton, Ia.	30,000	Nyack, N. Y.	15,000
Clinton, Mass.	25,000	Oswego, N. Y.	11,000
Cohoes, N. Y.	25,000	Ottawa, Can.	100,000
Collingwood, Ontario, Can.	10,000	Oyster Bay, N. Y.	1,000
Connecticut, Ohio	100,000	Paducah, Ky.	35,000
Cornell College, Ia.	40,000	Pekin, Ill. (additional)	5,000
Corvinton, Ky. (additional)	35,000	Pembroke, Ontario, Can.	10,000
Crawfordsville, Md.	25,000	Pensacola, Fla.	15,000
Cumberland, Md.	25,000	Perth Amboy, N. J.	20,000
Danville, Ill.	40,000	Peru, Ind.	25,000
Davenport, Ia.	25,000	Phoenixville, Pa.	20,000
Decatur, Ill.	60,000	Port Jarvis, N. Y.	30,000
Detroit, Mich.	750,000	Portland, Ind.	15,000
Elkhart, Ind.	35,000	Portsmouth, Ohio	50,000
Elkwood, Ind.	25,000	Revere, Mass.	20,000
Fargo, N. D.	20,000	Racine, Wis.	50,000
Fort Scott, Kan.	15,000	Redwing, Minn.	15,000
Fort Wayne, Ind.	75,000	Richmond, Va.	100,000
Freeport, Ill.	30,000	Riverside, Cal.	20,000
Fresno, Cal.	30,000	Rockford, Ill.	60,000
Galesburg, Ill.	50,000	St. Cloud, Minn.	25,000
Gloversville, N. Y.	25,000	St. John, N. F.	50,000
Goshen, Ind.	25,000	St. Joseph, Mo.	25,000
Grand Junction, Col.	3,000	St. Louis, Mo.	1,000,000
Great Falls, Mont.	30,000	San Francisco, Cal.	750,000
Green Bay, Wis.	25,000	San José, Cal.	50,000
Greenville, Ohio	25,000	San Juan, P. R.	100,000
Griffin's Corners, N. Y.	5,000	Sault Ste. Marie, Mich.	30,000
Grossdale, Ill.	35,000	Schenectady, N. Y.	50,000
Guthrie, O. T.	20,000	Seaboard Air Line (traveling libraries)	1,000
Hawarden, Ia.	5,000	Seattle, Wash.	200,000
Hempstead, N. Y.	25,000	Sharon, Pa.	25,000
Henderson, Ky.	25,000	Sheboygan, Wis.	25,000
Iron Mountain, Mich.	17,500	Sioux Falls, S. D.	25,000
Isippening, Mich.	10,000	South Omaha, Neb.	60,000
Jalip, N. Y.	20,000	Springfield, Ill.	75,000
Jackson, Mich.	70,000	Staten Island (N. Y.) Academy	500
Jackson, Tenn.	30,000	Stillwater, Minn.	25,000
Jacksonville, Ill.	40,000	Stratford, Manitoba, Can.	12,000
Janesville, Wis.	30,000	Superior, Wis.	50,000
Johnstown, N. Y.	20,000	Syracuse, N. Y.	260,000
Joplin, Mo.	40,000	Tacoma, Wash.	50,000
Kalispell, Mont.	10,000	Upper Iowa University, Ia.	25,000
Kansas City, Mo.	75,000	Valley City, N. D.	15,000
Kent, Ohio	10,000	Vancouver, B. C.	50,000
Lewanaue, Ill.	50,000	Wabash, Ind.	20,000
Lake Charles, Ia.	10,000	Walpole, Mass.	15,000
Lawrence, Kan.	25,000	Washington, Ind.	20,000
Leadville, Col.	100,000	Waukegan, Ill.	25,000
Lewiston, Me.	50,000	Wheeling, W. Va.	75,000
Lincoln, Ill.	25,000	Windsor, Ontario, Can.	20,000
Los Gatos, Cal.	10,000	Winnepeg, Manitoba, Can.	100,000
McKee's Rocks, Pa.	20,000	Yonkers, N. Y.	50,000
		Total	\$13,813,000

In addition, Mr. Carnegie's gifts for library purposes in Great Britain are recorded as reaching a total of £179,500, or over \$800,000. These were distributed to eight places, of which all but one were in Scotland, the record being as follows: —

Ann an, Dumfriesshire, Scotland	£3,000	Glasgow, Scotland	£105,000
Coatbridge, Lanark, Scotland	15,000	Larbert, Stirling, Scotland	3,000
Dalkeith, Scotland	4,000	Rutherglen, Lanark, Scotland	7,500
Dundee, Scotland	37,000	Waterford, Ireland	5,000
		Total	£179,500

ALUMINO-THERMIC WELDING. — By a new modification of the Goldschmidt process of aluminio-thermic welding and casting, skilled labor is

not necessary, and an ordinary workman can easily effect a good weld. The time is also shortened. The "thermit" mixture (of which one kilogramme yields 450 grammes of molten iron) is placed in a crucible made of iron plate lined with refractory material, mounted on a substantial tripod and closed at the bottom with one or more small iron plates, according to the quantity of "thermit" used. The "thermit" is covered with a layer of kindling or priming mixture, and an iron plate having a central hole, through which the charge can be ignited by means of a fuse, is placed over the whole. The crucible thus prepared is placed with its tap-hole immediately above the gate of a refractory mould built around the ends of the two rails to be jointed, which are so clamped together that the surfaces to be welded are pressed against each other. When all is ready, the charge is ignited, and in a few seconds the contents of the crucible should become fluid, and melting away the supporting iron plates, should flow into the mould and make the required joint. In this process it is the molten iron which first enters the mould, and the molten corundum slag floating on the top passes out last, instead of first as in the older teeming process. The method lends itself well to the jointing of rails already laid, and ensures a sound electrical contact; it is of no use, however, for rails of which the ends are worn, as it does not assist in checking the hammering of the wheels on the rails. The process cannot well be applied to the welding of tubes, as the hot metal is liable to melt its way through the tube at first contact; it is, however, very suitable for the repair of broken shafts or axles, and is especially recommended for use on board ship, as the appliances required are exceedingly simple and convenient. — *N. Y. Evening Post*.

NEW YORK'S MOST VALUABLE BUILDINGS.—The following list includes many, but probably not all, of the buildings in New York City that are assessed this year at a valuation of a million or more dollars:—

OFFICE-BUILDINGS, 1902.

Produce Exchange.....	\$3,000,000	Astor Building.....	\$1,500,000
Bowling Green Building....	2,500,000	A. L. Stevens Building....	1,175,000
Washington Building.....	1,500,000	American Exchange National Bank.....	1,000,000
Empire Building.....	2,400,000	National Bank of Commerce.....	2,000,000
Standard Oil Building.....	2,250,000	Trinity Building.....	1,000,000
Exchange Court.....	2,250,000	Boreel Building.....	1,600,000
Consolidated Exchange.....	1,300,000	Havemeyer Building.....	1,000,000
Union Trust.....	1,600,000	Western Union Building....	1,400,000
Wilks Building.....	1,150,000	National Park Bank Building.....	1,100,000
Stock Exchange Building....	2,100,000	St. Paul Building.....	1,200,000
Commercial Cable Building..	1,200,000	Park Row Building.....	2,400,000
Johnston Building.....	1,801,000	Potter Building.....	1,150,000
Lord's Court Building.....	1,150,000	American Tract Society Building.....	1,000,000
Mill Building.....	2,100,000	Pulitzer Building.....	1,500,000
Broad Exchange Building....	3,250,000	Postal Telegraph Building..	1,350,000
Drexel Building.....	1,200,000	Mutual R. F. Association Building.....	1,050,000
Atlantic Building.....	1,800,000	Stewart Building.....	2,000,000
National City Bank (Custom-house).....	2,800,000	Central National Bank Building.....	1,200,000
Manhattan Company Bank..	1,800,000		
United Bank.....	1,450,000		
American Surety Building..	2,000,000		
Hanover National Bank Building.....	1,300,000		

INSURANCE-BUILDINGS, 1902.

Manhattan Life.....	\$1,500,000	Washington Life.....	\$1,700,000
Mutual Life Company.....	4,700,000	New York Life Company....	3,000,000
Equitable Life.....	6,350,000		

HOTELS AND APARTMENT-HOUSES, 1902.

Astor House.....	\$2,000,000	Imperial.....	\$1,250,000
Fifth Avenue Hotel.....	3,000,000	Sherry's.....	1,100,000
Waldorf-Astoria.....	6,000,000		

THEATRES, 1902.

Metropolitan Opera-house.....	\$1,500,000		
-------------------------------	-------------	--	--

FIFTH-AVENUE RESIDENCES, 1902.

756 — Cornelius Vanderbilt, estate.....	\$1,550,000		
---	-------------	--	--

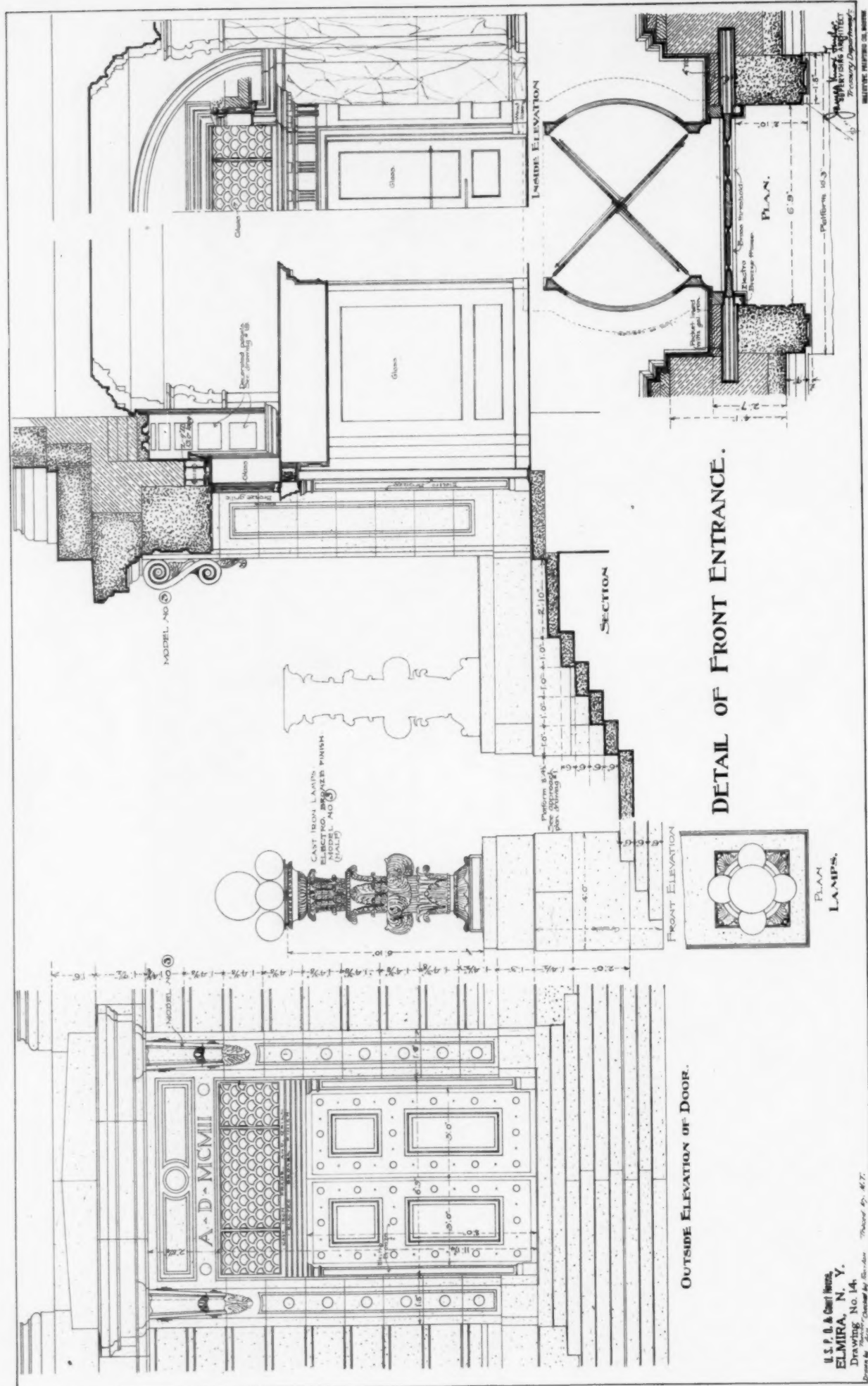
DIFFICULTY OF DISPOSING OF ITALIAN FAMILY ART-TREASURES.—The difficulty experienced by any Italian who wishes to dispose of one of his family art-treasures has been much discussed of late, but we make no excuse for quoting from *The Athenæum* some notes on the subject just contributed to that journal by its correspondent in Rome. This gentleman is Professor Rodolfo Lanciani, whose authority in matters of art and archaeology is widely recognized both in Europe and in the United States. He writes: "Commendatore Carlo Fiorilli, the genial Director-General of Antiquities, has published a report on the *attività amministrativa* of his department from January, 1900, to June, 1901. The volume is full of useful information as regards the safe keeping of antique monuments, the results of excavations, the new acquisitions of museums and galleries, etc. As regards the case against Prince Chigi on account of the famous Botticelli 'Madonna,' Commendatore Fiorilli's report says (page 164): In June, 1899, Prince Don Mario Chigi sold, for 315,000 lire, to Edmond Desprez, of the Colnaghi house of London, by the arrangement of Signor Enrico Pardo, the famous picture of Botticelli, 'La Vergine col Bambino benedicente l'Offerta d'un Angelo.' In announcing the sale to the Ministry of Public Instruction, Prince Chigi declared the purchaser to be a certain Lazzaro Papi, no trace of whom, it seems, could be found. The affair was brought before the first section of the Penal Court on October 24, 1900, and Prince Chigi and Desprez were condemned to pay a fine of 315,000 lire, the value of the lost picture. The Court of Appeal revised this judgment on February 28, 1901, reducing the fine to 2,000 lire, which was further reduced to a nominal sum of 200 lire, in consequence of a royal amnesty for offences of this nature granted on November 11, 1900. From this sentence both parties again appealed to the Supreme Court, the decision of which has just been published. It is in favor of a new

trial before the Court of Appeal of Perugia. I am told, however, that the wording of the decree is such as to leave the condemnation of Prince Chigi and Edmond Desprez to the full penalty of the law a foregone conclusion. From the same official publication I learn that the Princess Barberini-Sacchetti has been reported to the Public Prosecutor for having sold to the Louvre Museum, without proper license, the famous ivory diptych of Constantine, and the not less famous Siculo-Arab vase 'ageminated' in silver. She is also charged with selling to an unknown person the most precious codex of the Barberini Library. The tapestries belonging to the same family, and marked with the coat-of-arms of Pope Urban VIII, were sold to an American gentleman some years ago. I learn, in the third place, that Signor Enrico Pardo (the Botticelli agent mentioned above) and his partner, Signor Sanguinetti, have been condemned to pay 140,000 lire each for having sold illegally to an unknown purchaser the bust of Bindo Altoviti, modelled by Benvenuto Cellini. The Pope's government was so jealous of the safe keeping of this masterpiece that it caused it to be chained to the wall of the reception-room of the Altoviti Palace in the Piazza di Ponte S. Angelo. The bust was removed to Florence in 1888, when the Altoviti Palace was demolished to allow for the widening of the bed of the Tiber." — *Exchange*.

AFRIDI WAX-CLOTH.—Mr. George Watt, the Reporter on Economic Products to the Government of India, has succeeded in inducing the Afridi wax-cloth workers to impart the secret of their craft, which has hitherto puzzled all inquirers into Indian industries. Afridi wax-cloth, a kind of raised colored painting on cotton fabrics, has been made almost from time immemorial, and is a well-known product of certain workshops in Peshawar, Lahore, Calcutta, and Bombay; but until Mr. Watt set about his inquiries complete ignorance prevailed, outside the circle of artisans, as to the constitution of the medium employed. With the assistance of Mr. Roe, the Secretary to the Peshawar Municipality, Mr. Watt was able to ascertain that the medium, known as *rogan*, is a peculiar product of the safflower seed. 'The method of preparation, which is carried on entirely at Peshawar, is to boil the oil—expressed from the seeds by cold pressure—for twelve hours, and then throw the heated fluid into shallow pans of cold water. Under this treatment it swells up into a thick jelly-like substance, which is the *rogan* of commerce. Before being applied to the cloth it is mixed with some mineral color and drawn out into fine threads on a pointed style, with which the pattern is traced. The operators, who are invariably Afridis, attain a very high degree of skill, and possess marked artistic abilities. The weight of Afridi wax-cloth—an Afridi woman's costume would turn the scale at over thirteen pounds—makes it unsuitable to articles of European dress; but the ever-increasing demand for household drapings gave a ready outlet for the Afridi artisan's skill, to which he has readily adapted himself. Careful tests made in Calcutta also showed that as a waterproofing material, or as a material to be used in the manufacture of linoleum, *rogan* has a distinct claim to careful consideration, and is in some respects superior to linseed. Systematically exploited, there would appear to be a promising future before this industry.' — *The Times of India*.

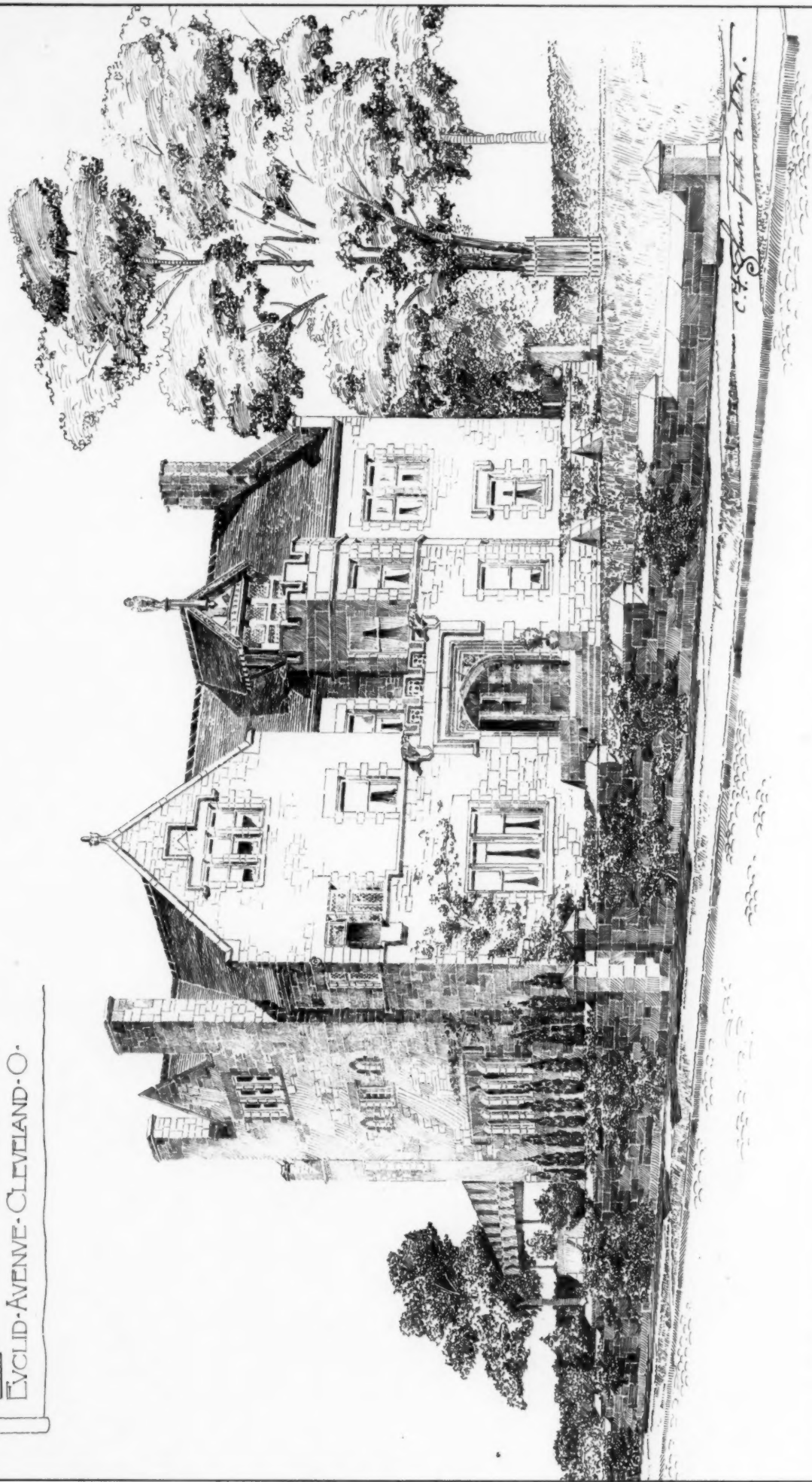
THE COMMERCIAL VALUE OF THE PARIS EXPOSITION TO FOREIGNERS.—The French Customs Department has just published a report for 1900, which throws much light on the direct commercial results of the recent International Exhibition at Paris. Fifty-nine countries forwarded their merchandise (food and drinks not included) to the value of 250,000,000 francs, but the sales amounted to only 7,500,000 francs. The United States sold to the value of 1,657,000 francs out of 29,000,000 francs; Germany, 1,510,000 francs out of 23,000,000 francs; England, 905,000 francs out of 20,000,000 francs; Italy, 389,000 francs out of 26,000,000 francs; Russia, 352,000 francs out of 22,000,000 francs; Belgium, 255,000 francs out of 19,000,000 francs; Austria, 188,000 francs out of 23,000,000 francs; and Hungary, 166,000 francs out of 42,000,000 francs. Customs duty to the amount of 778,000 francs had to be paid on these sales, nearly half of which consisted of machinery, artistic objects figuring for only 55,000 francs. Taking the general imports for the year 1900, the foreign merchandise at the Exhibition represented only 4.18 per cent, and the sales only .16 per cent. "The various amusements offered to the public," remarks the *Messager de Paris*, "may have been manifold, but the capital expended has been enormous, as had been predicted by all those who, remembering the exhibitions of 1867, 1878, and 1889, justly maintained that that of 1900 would not be successful." — *N. Y. Evening Post*.

AN ENGLISH JEER AT OUR ARCHITECTURE.—The negotiations between an Anglo-American syndicate and the London County Council for the acquisition of a large block of land in the Strand for the erection of a "world's wonder," in the shape of a mammoth office-building, have been broken off for the present on a mere trifle, writes John Hollingshead. The syndicate demands a lease for 999 years, just a little short of eternity, and the London County Council find that they are only empowered to grant a lease of ninety-nine years—a slight reduction. Every devout Londoner will call down all the blessings of creation on the Local Government Act which imposes these fetters on municipal action. The design of this mammoth building, as far as the plans have been disclosed, is to be of the Early Packing-case order of architecture developed by the sucking Palladios of Chicago, and sometimes known as the Perpendicular Goth and Vandal style. We have a feeble imitation of this penal architecture at "Queen Anne's Mansions," within "measurable distance," to use tailor's English, of Westminster Abbey, but no one has yet proposed to face Sir William Chambers's façade of Somerset House—much esteemed by persons who respect "Shakespeare, taste, and the musical glasses"—with a building like a glorified cotton-mill in Lancashire, adorned with Twelfth-cake ornaments. Such buildings may or may not tempt and encourage earthquakes, but they will certainly eclipse all our candle-lamp "monuments." — *Pall-Mall Gazette*.



U.S.P. & Carl Hertz,
ELMIRA, N. Y.
Drawing No. 14.
Drawn by J. H. Hertz. Checked by J. H. Hertz. Thru. by M. T.
Copyright 1914 by THE AMERICAN ARCHITECT AND ENGINEER, INC.

HOME OF D. Z. NORTON ESQ.
EVLID AVENUE - CLEVELAND - O.

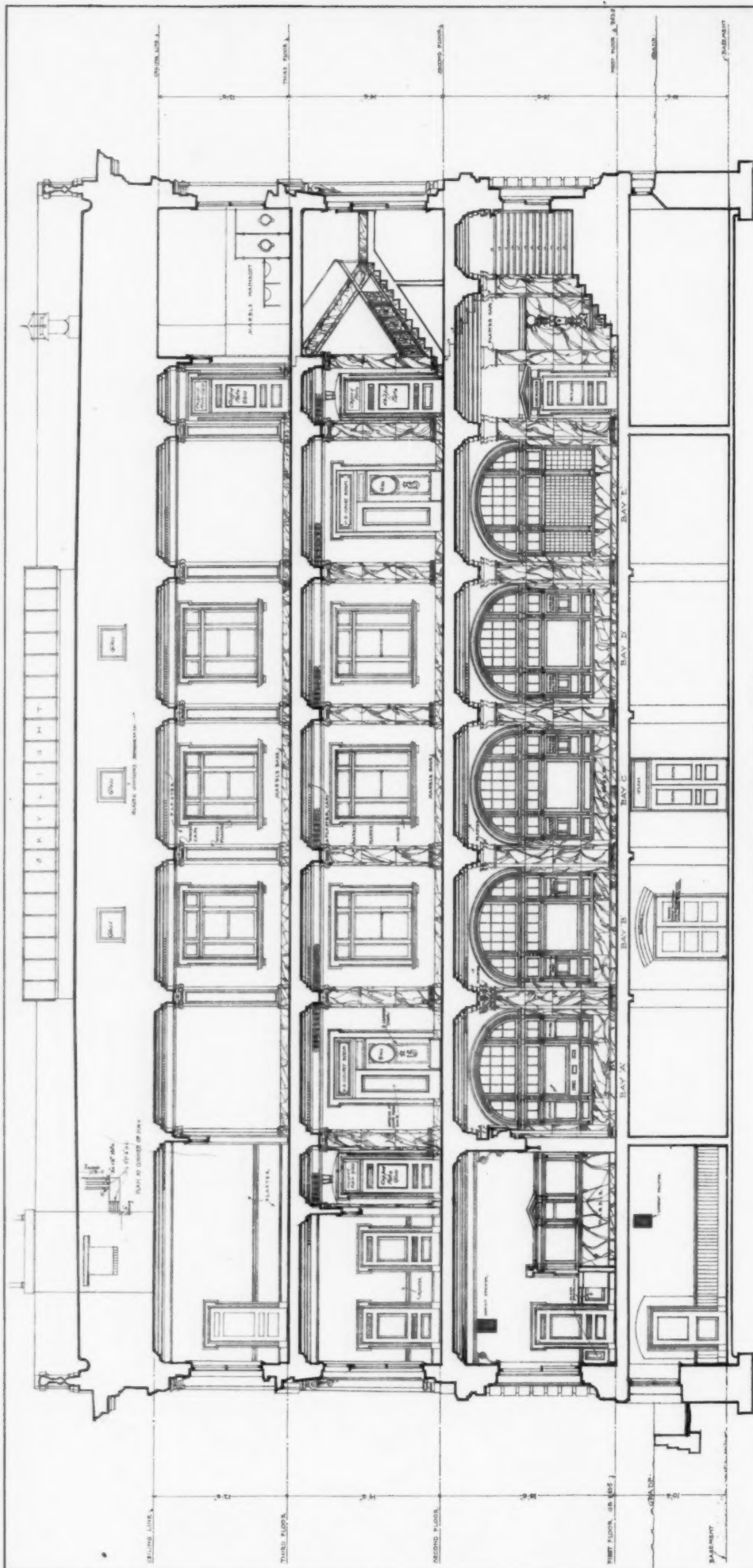


C. F. Johnson & Co. Architects.

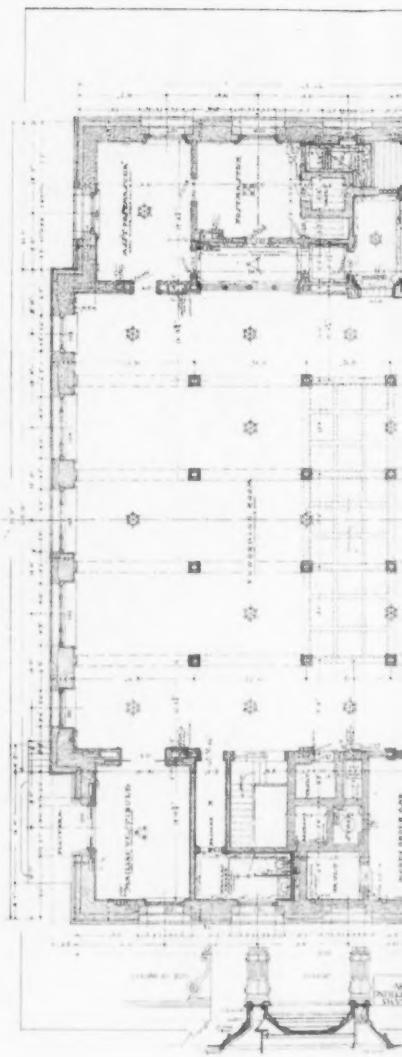
COPYRIGHT 1902 BY THE AMERICAN ARCHITECT AND BUILDING NEWS CO.

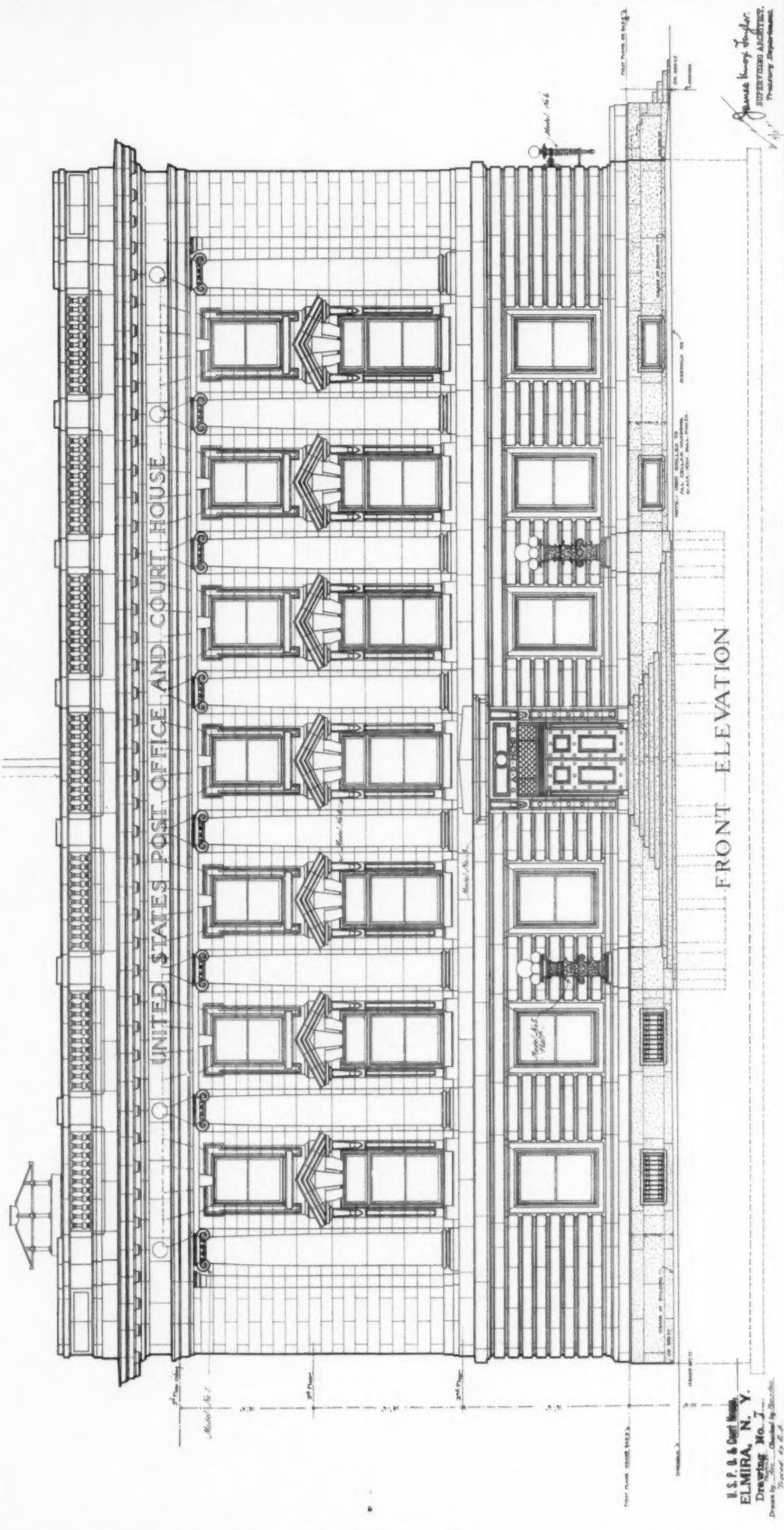
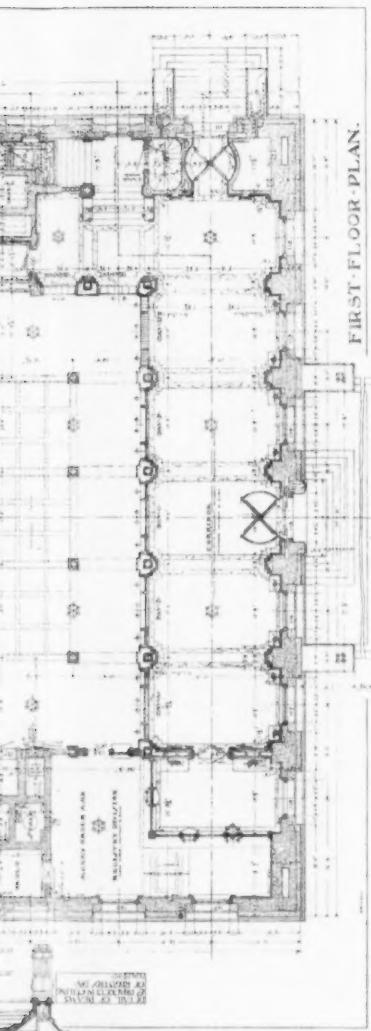
REPRODUCED BY THE AMERICAN ARCHITECT AND BUILDING NEWS CO.

The American Architect
March 1, 1902.
No. 1366.



LONGITUDINAL SECTION





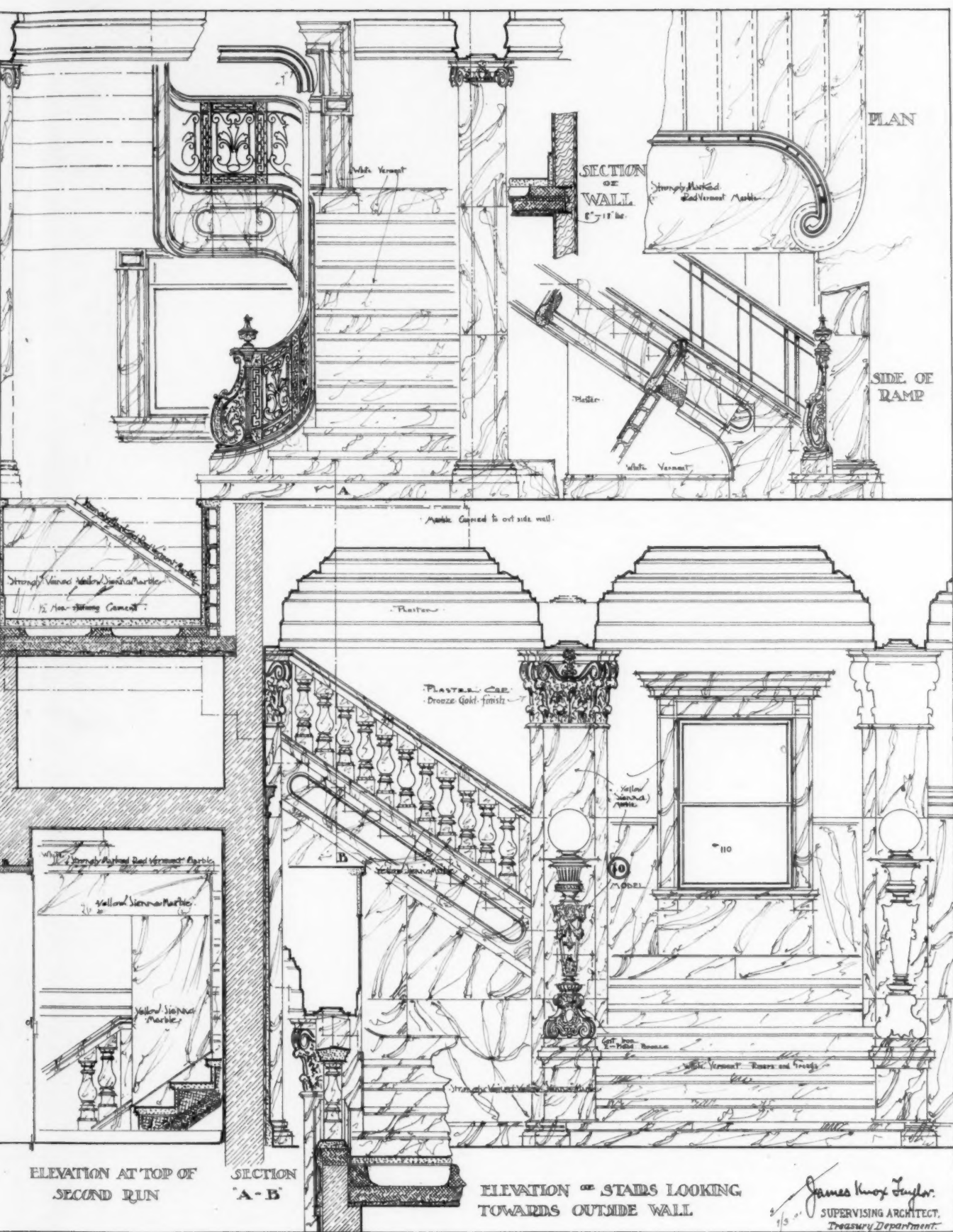
U.S.P.O. & Court House,
ELMIRA, N.Y.
Drawing No. 1
Designed by J. H. ...
Traced by E. A.

Copyright 1902 by the Architect and Engineer, J. H. ...

James H. ...
Architect
Professional Engineer

REPLACES PLANS OF ...

The American Architect
March 1, 1902.
No. 1366.



THE GREAT BERGER AND CARNAHAN PLANTS

AMERICAN ARCHITECT

AND BUILDING NEWS

ADVERTISERS' TRADE SUPPLEMENT

No. 238

SATURDAY, MARCH 1, 1902

VOLUME LXXV
No. 136

THE GREAT BERGER AND CARNAHAN PLANTS.

THE wildest flight of imagination could scarcely have foreseen the wonderful growth of the Berger Manufacturing Company. The enterprise was started in 1886 and employed half a dozen men. It was first situated in the basement, and afterward in the second story, of a blacksmith-shop. The business expanding, the factory was moved to more commodious apartments on Rex Street, where additional men were employed. Another move was made, owing to the growth of the business, and then it became imperative that room be secured to erect large buildings that would accommodate the new machinery and additional laboring-men.

A site was secured at what is known as Crystal Park, and the whole works located there. Addition after addition, improvement after improvement was made, the output became more diversified, and it was only a few years until the Berger Works became one of the leading manufacturing industries of Canton, Ohio.

The establishment of these Works in the north-east part of the city gave a stimulus to real-estate in that section, and from that time to the present that portion of the city has been built up and improved; a new school-house became a necessity, streets and additions were laid out, and homes were erected to shelter the families of those who found remunerative employment in the Works. Many of the employes who were industrious and frugal secured their homes, and live in modest luxury in one of the pleasantest residential portions of the city.

The magnitude of the business done can be realized when it is known that the office force of the Berger Works alone consists of 48 people, while in the shops proper 350 additional people are employed, most of whom are heads of families. The output is principally pressed iron and steel products, such as eave-troughs, conductor-pipe, house-roofing and siding of all descriptions, cornice, architectural ironwork, skylights, metal ceilings, and a large number of other designs used in structural work. In fact, almost an entire building can be produced at the Berger Works.

Fireproofing, lanterns, oil-cans, house, well and spray pumps are some of the minor products.

The past year has been the most prosperous in the history of the Company. This is an age of steel and iron structure, and the product of this factory is in greater demand than ever before. The output has been nearly double that of any previous year.

Under the management of Ed. A. Langenbach, who is Secretary and General Manager, the operation of the factory has been systematized, each department working under a separate superintendent, who reports to the General Manager.

In the first department special designs of cornice and arches are produced. In the second department the product is roofing and siding, including imitation brick and stone. The third department is devoted to the manufacture of all styles of tubular lanterns, including street-lamps, railroad-lanterns, oil-cans, pumps, etc. The painting has a department to itself.

The metal-ceiling department is one of the most important. All styles of metal ceilings are produced, the styles and designs being highly artistic. Then there is the galvanizing department, a shipping department and a separate place for fireproofing.

Eighteen travelling salesmen are on the road selling the products of the plant, and branch houses have been established in New York, Boston, Philadelphia, Chicago and St. Louis. Agencies have also been established all over the country.

The officers of the Berger Mfg. Co. are: Joseph Biechele, President; Chas. Lang, Vice-President; W. W. Irwin, Superintendent; Ed. A. Langenbach, Secretary and Manager.

Mr. Irwin was formerly with the Canton Rolling Mill Co., and later with the Dennison Rolling Mill Co., at Dennison, Ohio. After the purchase of the latter concern by the trust, he returned to Canton and bought out the John A. Berger interests in the Berger Mfg. Co.

The Berger Works consumed so great an amount of metal, and were at so great an expense in getting it here, that it was decided to establish a rolling-mill alongside of it. This was the beginning of the greatest industrial development that the city of Canton has ever known. Around the Berger Works as a nucleus have sprung up within the last year the Stark Rolling Mill Co., the Carnahan Tin Plate & Sheet Co., and the Carnahan Stamping & Enameling Co. The men in the Berger Works are identified with the new mills and manufactories, and were instrumental in securing these plants to the city.

The old Works take their name from Messrs. John and Wilson Berger, who were prime movers in the early development of the plants. Others have since become associated in the business and aided in its expansion. Much of the success of the institution has been due to the efforts of Manager Langenbach and

those immediately associated with him in the management.

The dimensions and description of the various departments and buildings of these great combined Works are given in the following list:—

1. Office, 35' x 100'.
2. Cornice, Lantern, Eave-trough and Conductor Department, 60' x 600'.
3. Bicycle House, 20' x 20'.
4. Warerooms, 40' x 326'.
5. Press-room (Metal Ceilings), 40' x 120'.
6. Die-house (Metal Ceilings), 30' x 60'.
7. Modelling Department, 17' x 60'.
8. Refining-house, 14' x 35'.
9. Roofing and Fireproof Department, 48' x 250'.
10. Boiler-house, 40' x 60'.
11. Galvanizing Department, 48' x 300'.
12. Black-sheet Warehouse, 50' x 200'.
13. Stables, 20' x 60'.
14. Sheet-mills, 140' x 400'.
15. Gas-producers, 40' x 60'.
16. Boiler-house, 50' x 100'.
17. Electric-plant, 50' x 90'.
18. Blacksmith-shop, 40' x 60'.
19. Proposed Open-hearth Plant, 140' x 400'.
20. Photograph Gallery, 24' x 40'.
21. Cook Park.
22. CARNAHAN TIN PLATE CO.
Rolling-mill and Tin House, 125' x 600'.
Boiler-house, 45' x 50'.
Machine-shop, 35' x 60'.
Gas-producer, 35' x 35'.

NEW GENERAL OFFICES OF THE N. & G. TAYLOR CO.

THE N. & G. Taylor Company announces the removal of its general offices to the Mariner and Merchant Building, Chestnut and Third Streets, where it has had spacious offices fitted up for its use. This change is necessary for its rapidly-growing business in the enlargement and development of its tin-plate plant; for its trade in open hearth, soft-steel sheets for stamping purposes, and for its business in plate, iron and steel, from its works at Cumberland, Md. Its minor offices are transferred to its tin-plate works at Tasker and Swanson Streets, where it has also erected spacious warehouses for the proper handling of goods. Its tin-plate departments have also been enlarged, and a new smelting-works, to meet the increased demand for its fine makes of solder, babbitt-metal, etc., has been built.

(Continued on page 3.)

"The Georgian Period"

THIS publication, which now consists of eight Parts, contains more than a hundred pages of text, illustrated by over three hundred text-cuts, and two hundred and ninety-seven full-page plates, of which one-third are gelatine or half-tone prints. It is in truth a work of superior excellence and great usefulness.

The matter already illustrated may in small part be classified thus:

PUBLIC BUILDINGS

City Hall, New York, N. Y.		Date 1803-12
Old State House, Boston, Mass.		" 1748
Pennsylvania Hospital, Philadelphia, Pa.		" 1755
Carpenters' Hall, Philadelphia, Pa.		" 1770
Independence Hall, Philadelphia, Pa.		" 1729
Faneuil Hall, Boston, Mass.		" 1741
and others.		

CHURCHES

King's Chapel, Boston, Mass.		Date 1749
Seventh-day Baptist Church, Newport, R. I.		" 1729
Christ Church, Alexandria, Va.		" 1767
Christ Church, Philadelphia, Pa.		" 1727
St. Paul's Chapel, New York, N. Y.		" 1764
Old South Church, Boston, Mass.		" 1729
First Church, Hingham, Mass.		" 1681
St. John's Chapel, New York, N. Y.		" 1803
First Congregational Church, Canandaigua, N. Y.		" 1812
St. Peter's P. E. Church, Philadelphia, Pa.		" 1758
Gloria Dei Church, Philadelphia, Pa.		" 1700
and others.		

IMPORTANT HOUSES

Fairbanks House, Dedham, Mass.		Date 1636
Royall Mansion, Dedham, Mass.		" 1737
Philipse Manor House, Yonkers, N. Y.		" 1745
Tudor Place, Georgetown, D. C.		" 179-
Mappa House, Trenton, N. Y.		" 1809
Woodlawn, Va.		" 1799
Mount Vernon, Va.		" 1743
and others.		

Incidentally there are shown special measured drawings or large views of the following features and details:

Porches and Doorways		67	Subjects
Staircases		21	"
Mantelpieces		81	"
Pulpits		6	"
Fanlights		60	"

In addition to the subjects enumerated above there is a large quantity of measured and detailed drawings of Cornices, Ironwork, Gateposts, Windows, Interior Finish, Ceiling Decoration, Capitals, etc., together with elevational and sectional views of entire buildings.

AMERICAN ARCHITECT & BUILDING NEWS CO., Publishers

Atlas PORTLAND CEMENT

The
Standard
American Brand.

Used Exclusively in the Following New York Buildings:

HAVEMEYER STORES	SINGER BLDG.
ST. PAUL BLDG.	UNIVERSITY CLUB
AMERICAN SURETY BLDG.	N. Y. LIFE INS. BLDG.
BANK OF COMMERCE	STANDARD OIL BLDG.
JOHNSTON and PRESBYTERIAN BLDGS.	
AND MANY OTHERS.	

Atlas Portland
Cement Company

143 LIBERTY STREET
NEW YORK

"Cohesive Construction."

An Essay on the
Theory and
History of
Cohesive Construction.

BY RAFAEL GUASTAVINO, ARCHITECT.

Price, \$1.25.

For Sale by the AMERICAN ARCHITECT.

ROCKLAND-ROCKPORT LIME COMPANY

Plants Located at Rockland, Rockport and Thomaston, Maine

Manufacturers of the best grade of "State of Maine Lime."

Rail shipments made direct from works to any point desired

Prompt shipments also made in cargo lots to any port on the Atlantic coast

This Company owns and has in commission six steel barges and an ocean going steel tug, by means of which the New York Market is promptly supplied with fresh lime at all times

MAIN OFFICE

ROCKLAND, MAINE

New York Office

Greenpoint Avenue and Newtowne Creek, Brooklyn, N. Y.

Orders for both rail and water shipment will receive prompt and careful attention



CARVED WOOD MOULDINGS...

For Interior Finish

AS CORNICES,
CHAIR AND
PICTURE RAILS,
CEILINGS, ETC.

..... New Catalogue just out.

GRAND RAPIDS CARVED MOULDING CO.

9 and 11 Myrtle Street,

GRAND RAPIDS, MICH.

This house was established in 1810, doing business at that time in the old district of Kensington; subsequently it removed to Second Street, above Race, then to Third Street, above Race, when in 1845 it built the premises on Branch Street, which it is now vacating. It has had a continuous existence as a firm for ninety-two years, being the oldest firm in its line in the United States. It is the sole

manufacturer of the celebrated "Taylor Old Style" brand of hand-dipped roofing-tin. This old-fashioned tin is made the same as the first roofing-tin that was ever made, which was in 1830, in Philadelphia, and sold by it at that time. The "Taylor Old Style" brand covers most of the prominent buildings throughout the United States, and is justly held by architects and the trade as the standard of

the highest quality. It received medals for tin-plates of high-grade manufacture at the Franklin Institute Exposition in 1874, at the Centennial Exposition in 1876, and also at the National Export Exposition, held in Philadelphia in 1899.

FIREPROOF INSULATORS.

ARCHITECTS and builders are confronted more than ever with the problem of rendering dwellings safer as regards fire. The public are satisfied satisfactory results are obtainable without the cost being prohibitive. As dwellings cannot yet be built cheap enough entirely out of stone, it becomes necessary to protect the wooden portions sufficiently, so that fire, when started, may not become too destructive. Fire spreads rapidly if it finds openings to act as flues, such as empty partitions, narrow, long hallways, elevators, shafts, etc. Hallways and elevators are still open problems, on account of presenting long openings which readily become chimneys.

By using fireproof plasterboards a partial remedy is secured. The partitions and outside walls are still left often vacant without

ALSEN'S PORTLAND CEMENT

Highest Quality, Most Reliable, Best Color, Most Enduring Surface, Greatest Bulk to the Barrel.

NOTABLE INSTANCES WHERE ALSEN'S CEMENT HAS BEEN USED BECAUSE OF ITS SUPERIOR QUALITY.

CATHEDRAL OF ST. JOHN THE DIVINE, N.Y.
WASHINGTON LIFE INSURANCE CO.'S BUILDING, N.Y.
MANHATTAN LIFE INSURANCE CO.'S BUILDING, N.Y.
AMERICAN SURETY CO.'S BUILDING, N.Y.

ELECTRIC R.R. SUBWAY, BOSTON.
METROPOLITAN SEWERAGE WORKS, BOSTON.
SEA WALL, LAKE FRONT, CHICAGO.
BRIDGES OVER HARLEM RIVER, N.Y.
THE U. S. NAVAL OBSERVATORY, WASHINGTON, D. C.

Alsen's Portland Cement Works, New York Office, 143 Liberty Street.

AGENTS AT BOSTON: WALDO BROS., 102 Milk Street.

Masonry in Modern Work.

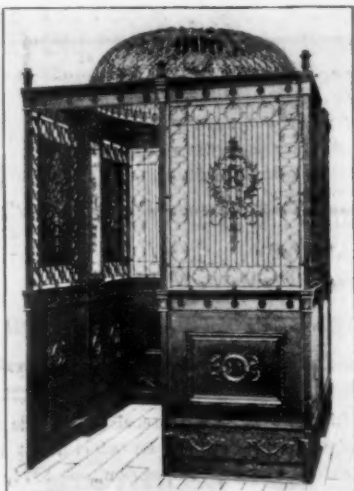
A "PROLEGOMENOS" ON THE FUNCTION OF MASONRY
IN MODERN ARCHITECTURAL STRUCTURES.

By R. GUASTAVINO, Architect.

Price, paper cover - - - - - 30 Cents.

For Sale by the AMERICAN ARCHITECT.

W. S. TYLER COMPANY
CLEVELAND, OHIO



MANUFACTURERS OF
ORNAMENTAL IRON AND
BRONZE WORK

occasional fire-stops cut in between the joists, although they should be completely filled in with either brick, plaster, mineral wool, etc.

Beside improving the fire-risk, it makes the walls, partitions, etc., a poorer transmitter of heat, cold or sound, thereby ensuring more comfort to the occupants at a trifling increased cost. Fuller information and particulars will be given upon application to the

U. S. MINERAL WOOL CO.,
143 LIBERTY ST., NEW YORK, N. Y.

MODERN WINDOW-LIGHTING.

Now that the lighting of show-windows at night has become a pronounced feature of the shopper's world, the importance of having

CITY AIR

Ruins in color and substance, painting based on white lead.

ZINC WHITE

Is the obvious alternative. Unaffected by any atmospheric influences it retains its beauty and protective value longer than any other white pigment.

FREE: Our Practical Pamphlets
"The Paint Question."
"Paints in Architecture."
"House Paints: A Common Sense
Talk About Them."

The New Jersey Zinc Co.
11 Broadway
New York

same brilliantly and effectively lighted becomes apparent at once. The palm for perfect show-window lighting seems to go without question to the Frink Special Patent Window Reflector, which has been so successfully installed in a large number of the best stores in the country, and has achieved the distinction of receiving the highest award wherever exhibited. A few of the more prominent houses recently adopting same are: Edward Malley & Co., New Haven, Conn.; Kauffman, Strauss & Co., and Graves, Cox & Co., Lexington, Ky.; Geo. Muse, Atlanta, Ga.; Eastman Bros. & Bancroft, Portland, Me.; Parker-Low D. G. Co., Ft. Worth, Tex.; W. R. Bennett & Co., Omaha, Neb., and the Norfolk store of Burke & Co.; this latter firm having already installed it in the windows of their Nashville, Richmond, Dallas, and Memphis stores. Messrs. H. C. F. Koch, New York, and Callender, McAulan & Troup Co., Providence, R. I., have just installed with fine effect a modification of this famous reflector for lighting the art-department of their stores. Mr. Frink makes a specialty of store-lighting, show-windows, show-cases, and interior reflectors, and a card addressed to him will probably bring a catalogue replete with suggestive illustrations and valuable information.

ECONOMICAL HEATER.

THE Wilks Water-heater and Garbage Crematory is the most economical heater on the market for heating water in large quantities for apartment-buildings, hotels, private houses, etc.

The magazine and feed-box have been reconstructed and enlarged in order that garbage may be burned in connection with the coal. The garbage is mixed with the coal in the magazine and becomes thoroughly dried by the action of the hot gases surrounding the magazine. It then feeds down readily with the coal and is consumed.

By this means the garbage is converted into fuel and aids materially in heating the water, thereby reducing the amount of coal ordinarily used.

S. WILKS MFG. CO.,
CHICAGO, ILL.

NOTE.

THE Southern Pacific Railway Company has decided to improve its facilities at various points on its system for the building and repairing of rolling-stock; and to this end have placed with the American Bridge Company of New York contracts for boiler-shop at East Portland, Ore., boiler and machine shops at San Francisco, Cal., boiler and machine shops at Los Angeles, Cal., machine-shop at El Paso, Texas, machine-shop at Houston, Texas. These buildings are all about 120' x 250' equipped with travelling cranes.



The Ideal "ARCADIA" Water-Closet Combination

Unquestionably the
Finest Closet that
has ever been pro-
duced. None other
can be compared
with this High-
Grade, Original and
Strictly Sanitary
Closet Combination

THE IDEAL MFG. CO.
DETROIT, U. S. A.

Buckeye Paint & Varnish Co. PAINT, COLOR AND VARNISH MAKERS

Crystal-Rock Finishes

Liquid and Paste Fillers
Varnishes and Japans
TOLEDO, OHIO

THE LIBRARY of CONGRESS,

WASHINGTON, D. C.

Architects: Smithmyer & Pelz:

P. J. Pelz; E. P. Casey.

Twenty Gelatine Plates, in Portfolio
14" x 16 1-2".

PRICE - - \$5.00.

AMERICAN ARCHITECT AND BUILDING NEWS CO

CRANE FITTINGS ESTABLISHED 1855



BUTCHER'S BOSTON POLISH
is the best finish for
FLOORS, ...
Interior Woodwork and Furniture.
Circulars Sent on Application.
For Sale by Dealers in Painters' Supplies.
MANUFACTURED BY THE
BUTCHER POLISH CO.,
356 Atlantic Ave., Boston, Mass.



80-Paged Illustrated Catalogue
of over 250 Designs of
Superior
**WEATHER VANES,
TOWER ORNAMENTS,
CHURCH CROSSES,
FINIALS, etc., etc.**
Mailed to any address for 2-cent
stamp—half the postage.
T. W. JONES, Manufacturer,
18 FLETCHER ST., NEW YORK.

BOOKS:

"Empire Ornaments, Furniture, etc."

A reprint of the well-known work of
M. Charles Normand.

36 Plates. Price \$6.00.

AMERICAN ARCHITECT AND BUILDING NEWS CO.

Topographical Index of Advertisers.

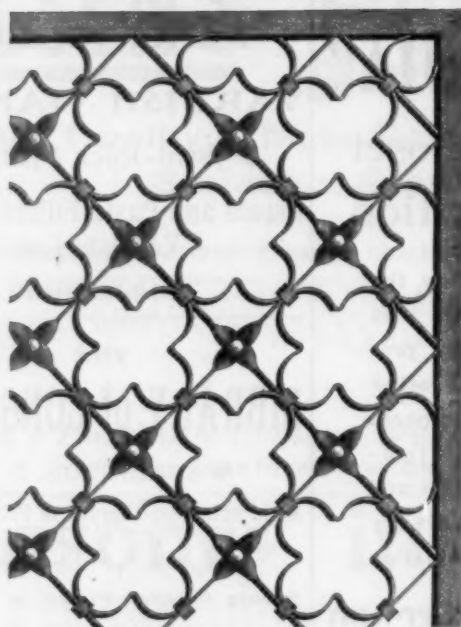
[For pagination, see Alphabetical Index on Cover 2.]

CONNECTICUT.
New Britain.
The Stanley Works.....[Wrought-Steel Butts.
New Haven.
Fitch Co., The W. & E. T.....[Sash Lock.
Stamford.
Yale & Towne Mfg. Co.....[Locks.
Waterbury.
Benedict & Burnham Mfg. Co.....[Seamless
Nickel-Silver Tubing.....
ENGLAND.
London.
The Architect and Contract Reporter.....[Magazine.....
ILLINOIS.
Chicago.
Crane Co.....[Valves.
Johnson Co., E. V.....[Fireproofing.
Northwestern Terra-Cotta Co.....[Terra-Cotta.
Stamson & Blom.....[Cement Pavings.
Taylor, J. W.....[Photographs.
Wilks Mfg. Co., S.....[Hot-Water Heater.
Winslow Bros. Co., The.....[Ornamental Iron
and Bronze.....
MAINE.
Rockport.
Rockland-Rockport Lime Co.....[Lime.....
MARYLAND.
Baltimore.
Vallie & Young.....[Skylights.
MASSACHUSETTS.
Boston.
Amer. Mason Safety Tread Co.....[Stair Tread.
Bartlett Lumber Co.....[Redwood Lumber.
Butcher Polish Co.....[Floor Polish.
Cabot, S.....[Shingle-Stains.
Campbell, Walter M.....[Perspectives.
Carter Ink Co.....[Ink.
Dickey & Co., A.....[Spiral Mouldings.
Folsom Snow Guard Co.....[Snow Guards.
Gurney Heater Mfg. Co.....[Hot-water, etc.
Heliotype Printing Co.....[Art Printing.
Lombard & Co., A. F.....[Architectural Ornamentation.
Massachusetts Institute of Technology.....[School.
New England Felt Roofing Works.....[Roofing.

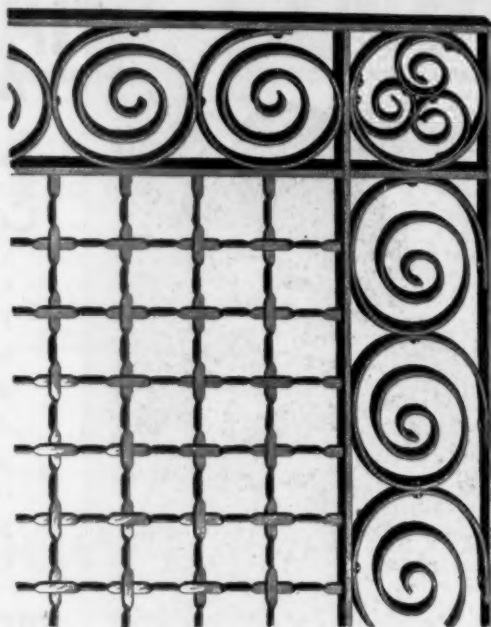
MASSACHUSETTS.
Boston.
Samson Cordage Works.....[Sash-Cord.
Spanning Print Paper Co.....[Blue Prints.
Union Brass Works.....[Faucets.
Walker & Pratt Mfg. Co.....[Boiler (Steam and Hot-Water).
Whittier Machine Co.....[Elevators.
Clinton.
Clinton Wire Cloth Co.....[Metallic Lathing.
Palmer.
Flynt Building & Construction Co.....[Building Contractors.....
Worcester.
Hill Dryer Co.....[Clothes-Dryer.
MICHIGAN.
Detroit.
Berry Brothers, Limited.....[Shingle-tint.
Dwight Lumber Co.....[Hardwood Flooring.
Ideal Mfg. Co.....[Sanitary Specialties.
Grand Rapids.
Grand Rapids Carved Moulding Co.....[Mouldings.
Rettig & Sweet.....[Lodge Furniture.
Weddell Mfg. Co.....[Grilles and Carvings.
MISSOURI.
St. Louis.
Ludlow Saylor Wire Co.....[Art Metal-Work.
NEW JERSEY.
Camden.
Montross Metal Shingle Co.....[Metal Shingles.
Jersey City.
Dixon Crucible Co., Jos.....[Graphite.
Paterson.
Passaic Rolling Mill Co.....[Structural Iron.
Perth Amboy.
Perth Amboy Terra-Cotta Co.....[Terra-Cotta.
NEW YORK.
Irvington-on-Hudson.
Lord & Burnham Co.....[Conservatories.
Ithaca.
Cornell University.....[School.
Jamestown.
Art Metal Construction Co.....[Art Metal Work.....
N. Y. City.
Alsen's Cement Works.....[Cement.
American Iron Bridge Co.....[Steel Structures.
American Sheet Steel Co.....[Galvanized Iron.
Atlas Cement Co.....[Cement.
Bickelhaup, G.....[Skylights.
Columbia University.....[School.
Deane, E. Eldon.....[Colorist.
Elevator Supply and Repair Co.....[Electric Signals.
Fisher & Co., Robert C.....[Marble.
Frynk, I. P.....[Refractors.
Gorton & Lidgerwood Co.....[Boilers.
Hayes, George.....[Metallic Lathing.
Hitchings & Co.....[Greenhouses.
Jackson & Co., Wm. H.....[Grates.
Jenkins Bros.....[Valves.
Jones, T. W.....[Fanes.
Ken-Corklyn.....[Rugs (Carpet).
Mott Iron Works, The.....[Iron Work.
Neuchatel Asphalt Co.....[Asphalt.
New Jersey Zinc Co.....[Zinc White.
New York Bell and Packing Co., Ltd.....[Interlocking Rubber Rings.
N. Y. Metal Ceiling Co.....[Metal Ceilings.
Northrop, H. S.....[Metal Ceiling.
Okonite Co. (Ltd.).....[Insulated Wire.
Pitt, W. B.....[Folding-Gates.
Rider-Ericson Engine Co. (Hot-Air Engines.
Sargent & Co.....[Builders' Hardware.
Smith Co., H. B.....[Steam Heat.
Smith & Co., Edward.....[Furnishes.
Thiele, E.....[Portland Cement.
U. S. Mineral Wool Co.....[Mineral Wool.
Warren Chemical & Mfg. Co.....[Amphib. Roofing.
Williams, John.....[Wrought Metal.
Yale & Towne.....[Hardware (Art).
Rochester.
Cutler Mfg. Co.....[Mail Chutes.
Syracuse.
Syracuse University.....[School.
Troy.
Globe Ventilator Co.....[Ventilators.
Troy Laundry Machinery Co.....[Washing Machines.....

NEW YORK.
N. Y. City.
Alsen's Cement Works.....[Cement.
American Iron Bridge Co.....[Steel Structures.
American Sheet Steel Co.....[Galvanized Iron.
Atlas Cement Co.....[Cement.
Bickelhaup, G.....[Skylights.
Columbia University.....[School.
Deane, E. Eldon.....[Colorist.
Elevator Supply and Repair Co.....[Electric Signals.
Fisher & Co., Robert C.....[Marble.
Frynk, I. P.....[Refractors.
Gorton & Lidgerwood Co.....[Boilers.
Hayes, George.....[Metallic Lathing.
Hitchings & Co.....[Greenhouses.
Jackson & Co., Wm. H.....[Grates.
Jenkins Bros.....[Valves.
Jones, T. W.....[Fanes.
Ken-Corklyn.....[Rugs (Carpet).
Mott Iron Works, The.....[Iron Work.
Neuchatel Asphalt Co.....[Asphalt.
New Jersey Zinc Co.....[Zinc White.
New York Bell and Packing Co., Ltd.....[Interlocking Rubber Rings.
N. Y. Metal Ceiling Co.....[Metal Ceilings.
Northrop, H. S.....[Metal Ceiling.
Okonite Co. (Ltd.).....[Insulated Wire.
Pitt, W. B.....[Folding-Gates.
Rider-Ericson Engine Co. (Hot-Air Engines.
Sargent & Co.....[Builders' Hardware.
Smith Co., H. B.....[Steam Heat.
Smith & Co., Edward.....[Furnishes.
Thiele, E.....[Portland Cement.
U. S. Mineral Wool Co.....[Mineral Wool.
Warren Chemical & Mfg. Co.....[Amphib. Roofing.
Williams, John.....[Wrought Metal.
Yale & Towne.....[Hardware (Art).
Rochester.
Cutler Mfg. Co.....[Mail Chutes.
Syracuse.
Syracuse University.....[School.
Troy.
Globe Ventilator Co.....[Ventilators.
Troy Laundry Machinery Co.....[Washing Machines.....

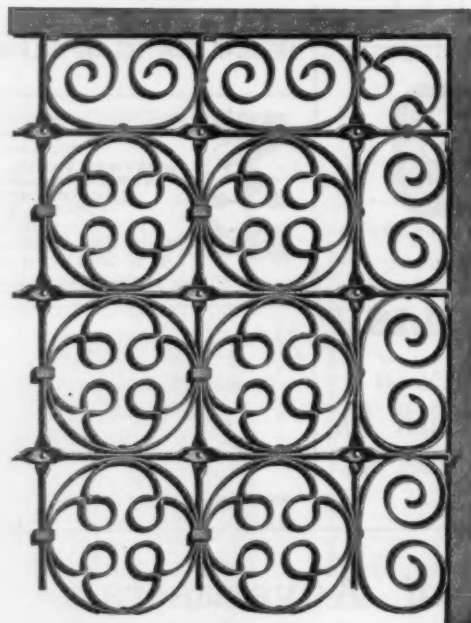
OHIO.
Canton.
Berger Mfg. Co., The.....[Metal Ceilings.
Canton Steel Roofing Co., The.....[Metal Ceilings.
Cincinnati.
American Steel Roofing Co., The.....[Conductors.
Cleveland.
Tyler Co., The W. B.....[Ornamental Iron and Bronze.....
Columbus.
Nelson Co., The C. T.....[Capitals (Carved).
Ohio State University.....[School.
Salem.
Mullins, W. H.....[Architectural Metalwork.
Toledo.
Buckeye Paint and Varnish Co.....[Paints.
West Cleveland.
Cudell, F. E.....[Traps.
PENNSYLVANIA.
Ambler.
Kearney & Mattison Co.....[Magnesia Covering.
Philadelphia.
French & Co., Samuel H.....[Mortar Colors.
Loonis Filter Improved System.....[Filter.
Merchant & Co., Inc.....[Ventilation.
Morse, Williams & Co.....[Elevators.
Taylor Co., N. & G.....[Tin.
Thorn, J. S. Co.....[Sheet Metal.
University of Pennsylvania.....[School.
Pittsburgh.
Wisconsin Graphite Paint.....[Graphite Paints.
York.
Vapor Heating Co.....[Heating Apparatus, Steam.
VERMONT.
Burlington.
Burlington Venetian Blind Co.....[Fretwork and Sliding Blinds.....



No. 138. GRILLE.



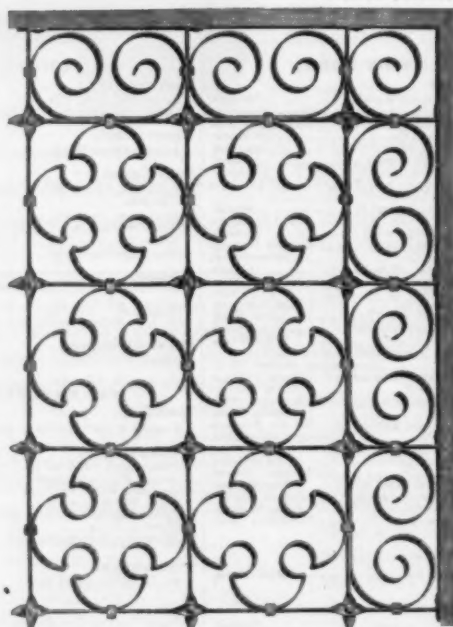
No. 142. GRILLE.



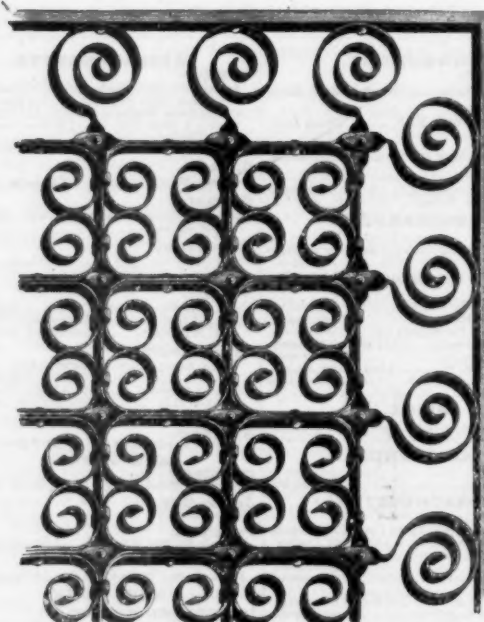
No. 144. GRILLE.

THE WM. R. PITT
COMPOSITE IRON WORKS,
111 FIFTH AVENUE,
NEW YORK.

MANUFACTURERS OF THE "PITT," "BOSTWICK,"
NOVELTY AND COMPOSITE PATENT FOLDING GATES AND
GUARDS, IN BRASS, BRONZE, STEEL OR IRON, FOR STORE
FRONTS, VESTIBULES, ELEVATOR ENCLOSURES AND CARS,
BANK VAULTS, WINDOWS, BRIDGES, FERRYBOATS, CARS,
ETC. ALSO ARCHITECTURAL AND ORNAMENTAL IRON,
BRASS AND BRONZE WORK FOR BUILDINGS, RAILINGS,
DRIVEWAY AND ENTRANCE GATES, WINDOW GRILLES,
MARQUEES, BANK AND OFFICE GRILLE WORK, STAIRS,
LANTERNS, SPECIAL HARDWARE AND ALL ARTISTIC
WROUGHT WORK. ESTIMATES FURNISHED.



No. 141. GRILLE.



No. 143. GRILLE.



MASONIC TEMPLE, BOSTON.
LORING & PHIPPS, ARCHITECTS.

Fire-proof Deadening for City Houses

A fireproofing result infinitely superior to that obtained with sheet asbestos, and practically perfect sound-deadening, can be had in all kinds of buildings, by using

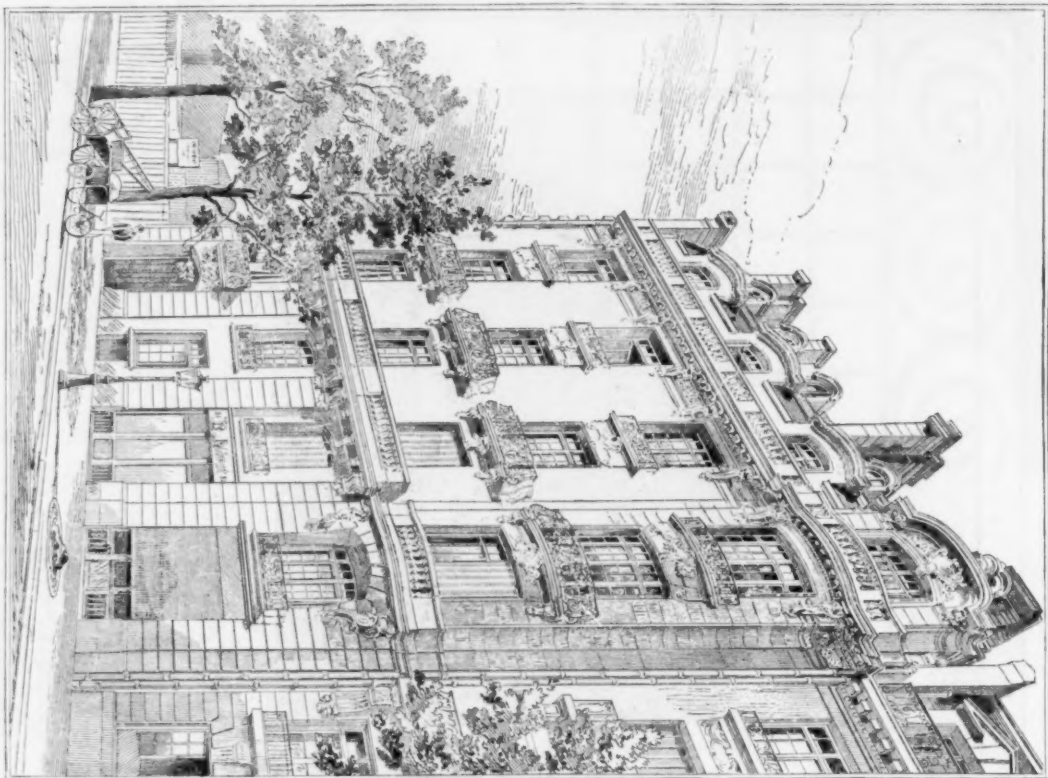
Cabot's Asbestos "Quilt"

The only scientific deafener. Indestructible by decay, moths or vermin. Beware of cow-hair and other unsanitary imitations.

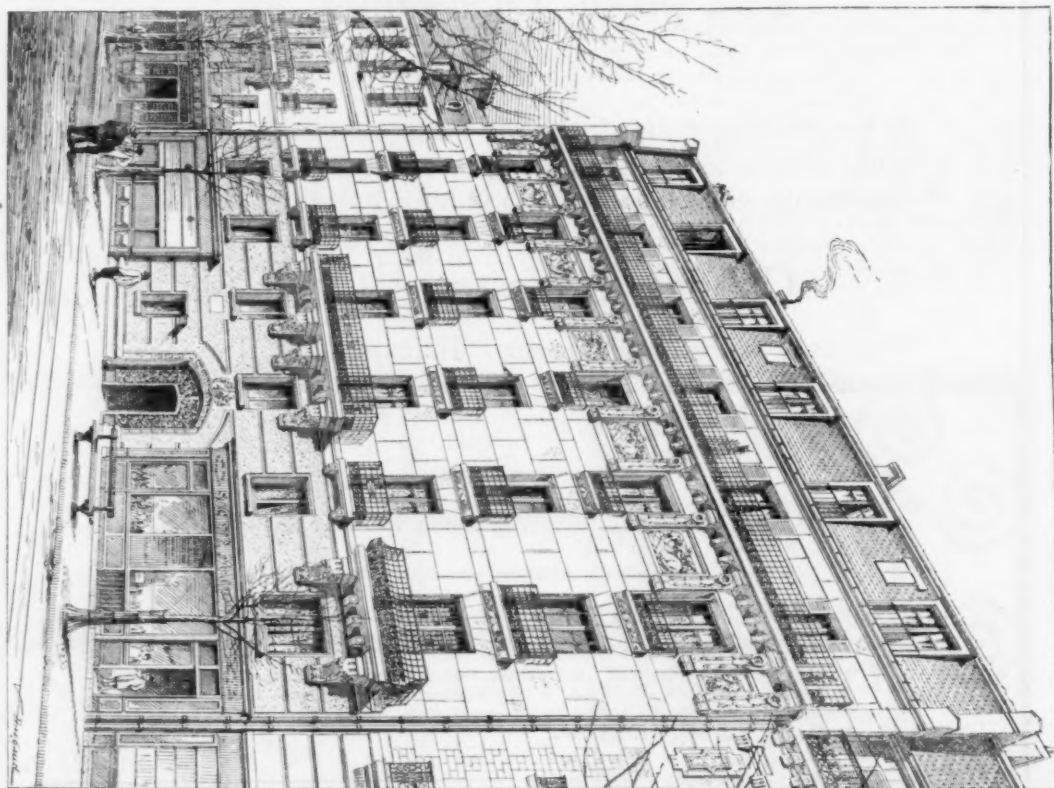
SAMUEL CABOT, Sole Manufacturer, BOSTON, MASS.

28 Dearborn Avenue, Chicago, Illinois.

AGENTS: V. H. Schneider, 8 Wooster St., New York; Samuel H. French & Co., Philadelphia, Pa.; Waterhouse & Price, San Francisco, Cal.; P. H. Matthews, Los Angeles, Cal.; Whitelaw Brothers, St. Louis, Mo.; George H. Lawes & Co., St. Paul and Minneapolis, Minn.; John H. Corning, Washington, D. C.; Brady & Co., Detroit, Mich.; The National Building Supply Co., Baltimore, Md.; Timms, Edwards & Co., Portland, Ore.; Cleveland Builders' Supply Co., Cleveland, O.; A. Muirhead, Toronto; Seymour & Co., Montreal; S. W. R. Dally, Seattle, Wash., and at all other central points.



HOUSE ON THE AVENUE MALAKOFF, PARIS.
M. LE VOISVENEL, ARCHITECT.



HOUSE ON THE RUE DE LA CONVENTION, PARIS.
M. LÉGRIEL, ARCHITECT.

STANDARD FOR RUBBER INSULATION.



TRADE MARK.

WILLARD L. CANDEE, Mgrs. GEO. T. MANSON, Gen'l Supt.
H. DURANT CHEEVER, Sec'y. W. H. HODGINS, Sec'y.

OKONITE INSULATED ELECTRIC LIGHT WIRES

Are pronounced by leading Architects to be SAFE, DURABLE and EASILY ADJUSTED for the inside wiring of PUBLIC and PRIVATE BUILDINGS.

CANDEE WEATHERPROOF WIRES, OKONITE WATERPROOF TAPE, MANSON PROTECTING TAPE.

—SOLE MANUFACTURERS—

THE OKONITE CO., LTD., 253 BROADWAY, NEW YORK.

ESTABLISHED 1868
HAYES
METAL
SKYLIGHTS, LATHING & S.
71 8TH AVE. NEW YORK.
FIREPROOF WIRE GLASS WINDOWS.


ESTABLISHED
1852.
Incorporated
1868.
Capital \$60,000.
LEVI L. WILLIAMS, Pres.
ERNEST C. DAVIS, Treas.

NEW ENGLAND FELT ROOFING WORKS,

18 Post Office Sq., BOSTON.

Originators of Felt Roofing in New England.

Inventors and only Manufacturers of the Celebrated
"BEEHIVE BRAND."



The Star Ventilator STORM-PROOF EFFECTIVE

FOR COTTON, WOOLEN AND PAPER MILLS, DYE HOUSES, SLASHERS, ETC.

Send for Illustrated Catalogue

MERCHANT & CO., Inc.

Sole Manufacturers

Phila. New York Chicago Brooklyn Charlotte, N. C.

Pencil Perfection

is found in Dixon's pencils.

They give the best service because they are of the best quality.

Send 16 cts. in stamps and receive samples worth double the money.

JOSEPH DIXON CRUCIBLE COMPANY
Jersey City, N. J.

BRONZE

JNO. WILLIAMS
BRONZE FOUNDRY AND WORKS
WROUGHT IRON WORKS
544 to 556 WEST 27th STREET, NEW YORK

WROUGHT IRON

CRANE VALVES

ESTABLISHED 1855

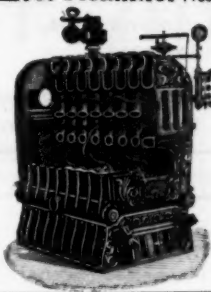
The New WALKER BOILER for Steam: for Water

It is customary to specify boilers about fifty per cent larger than would be required by the manufacturer's table of capacities.

For the "New Walker Boiler" this is not necessary and is a mistake, because our boilers will carry their full rated capacities, guaranteed, with ordinarily fair usage and with attention, say, twice a day.

This saves money for the owner.

WALKER & PRATT MFG CO., BOSTON

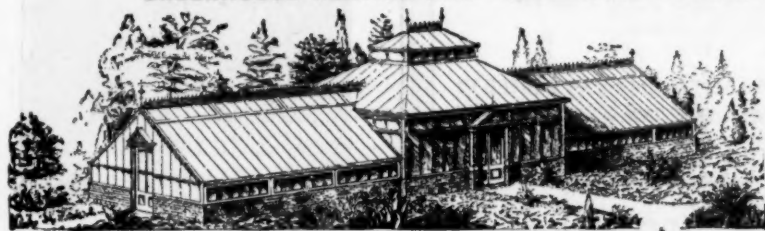


HITCHINGS & CO., Established 50 years

HORTICULTURAL ARCHITECTS AND BUILDERS

and largest Manufacturers of

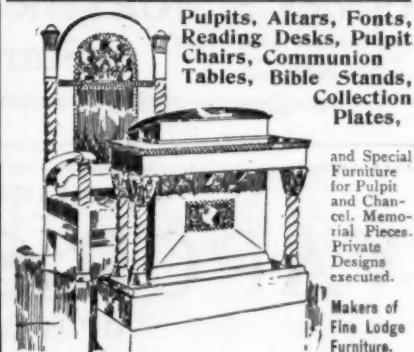
GREENHOUSE HEATING AND VENTILATING APPARATUS.



The highest awards received at the World's Fair for Horticultural Architecture, Greenhouse Construction and Heating Apparatus. Conservatories, Greenhouses, Palmhouses, etc., erected complete with our Patent Iron Frame Construction.

Send four cents for Illustrated Catalogue.

233 MERCER STREET, N. Y. CITY.



Pulpits, Altars, Fonts, Reading Desks, Pulpit Chairs, Communion Tables, Bible Stands, Collection Plates,

and Special Furniture for Pulpit and Chancel. Memorial Pieces. Private Designs executed.

Makers of Fine Lodge Furniture.

RETTING & SWEET, Makers, 11 B St., Grand Rapids, Mich.

BOOKS:

"Cathedral of St. John the Divine."

Designs submitted in the First Competition.

57 Plates, folio. Price \$5.00.

AMERICAN ARCHITECT AND BUILDING NEWS CO.

Stairbuilders' Supplies

of all kinds and Spiral Mouldings of every description

A. DICKEY & CO.

37 Bristol St., BOSTON



GRILLES.

Original designs, beautifully Carved to fit any space.

Also Carved and Embossed Mouldings, Capitals, Newel Post Tops, Rope and Twist Balusters.

Waddell Manufacturing Co.

No. 3 Plainfield Ave. Grand Rapids, Mich., U.S.A.

Illustrated General Catalogue No. 18. Over 1,000 designs. mailed for ten cents in stamps.

Send
for
Samples.

If you SPECIFY



SAMSON SPOT CORD

You can tell at a glance that no other cord is substituted. It is warranted to be of pure Cotton, smooth finish and perfect braid.

Samson Cordage Works, Boston, Mass.



Jenkins Bros.' Valves

are manufactured of the best steam metal, and are fully guaranteed. Why experiment with cheap valves? If you want the **BEST** ask your dealer for valves manufactured by Jenkins Brothers. Remember all genuine are stamped with Trade Mark like cut.

JENKINS BROTHERS, New York, Philadelphia, Chicago, Boston

ASPHALT ROOFING AND PAVING MATERIALS.

WARREN'S "ANCHOR BRAND" NATURAL ASPHALT ROOFING. WARREN'S NATURAL ASPHALT READY ROOFING.

Send for circulars, samples and specification forms to

WARREN CHEMICAL & MFG. CO. . . . 81 & 83 Fulton Street, NEW YORK, U.S.A.

Telephone Call, 1481 John

HENRY S. NORTHROP, Manufacturer of

Special attention to large, plain work, curved work, etc., to architect's designs.

. . . Stamped Steel Ceilings

40 Cherry Street, Near Franklin Sq., New York

BROOMELL'S

VAPOR SYSTEM

OF HEATING

Adapted to buildings of every kind and size.

Superior to hot water heating.

No pressure on radiators. No air valves.

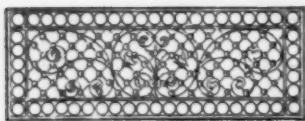
No noise. No machinery. Heat under perfect control.

Easily installed by all steamfitters.

Architects are requested to send blue prints with data. Drawings and specifications will be furnished free. Open to all contractors for bids.

VAPOR HEATING CO., York, Pa.

LUDLOW SAYLOR WIRE CO. N. E. Cor. Fourth & Elm Sts. ST. LOUIS, MO.



Elevator Enclosures and Cabs,
Metal Work in Brass,
Wire and Wrought-Iron,
Office and Bank Railings,
Wire and Iron Fences, etc.

N. & G. TAYLOR CO.

MAKE

THE "TAYLOR OLD STYLE" BRAND

ROOFING TIN, THEMSELVES

From the raw materials to the finished product throughout. They therefore know exactly what enters into its manufacture.

Dealers selling "private brands" have their plates made for them and therefore do not know what materials are used.

Only a manufacturer knows that.

OUR NAME AS MANUFACTURER IS STAMPED ON EVERY SHEET.

SEE THAT YOU GET THE GENUINE.

N. & G. TAYLOR CO.

SOLE MANUFACTURERS.

Established 1810.

PHILADELPHIA.

ASPHALT FLOORS, ROOFS, SIDEWALKS AND CARRIAGE-WAYS

Of Public Buildings, Hospitals, Warehouses, Stables, Cellars, etc.

Laid with VAL de TRAVERS ROCK ASPHALT,

DURABLE, FIREPROOF AND IMPERVIOUS.

For estimates and list of works executed, apply to

THE NEUCHÂTEL ASPHALT CO., Limited,

265 BROADWAY - - - NEW YORK.

Conservatories,

Greenhouses,

Vineries, Etc.

Designed, erected and heated. Catalogue, also special plans and estimates, on application.

LORD & BURNHAM CO.,

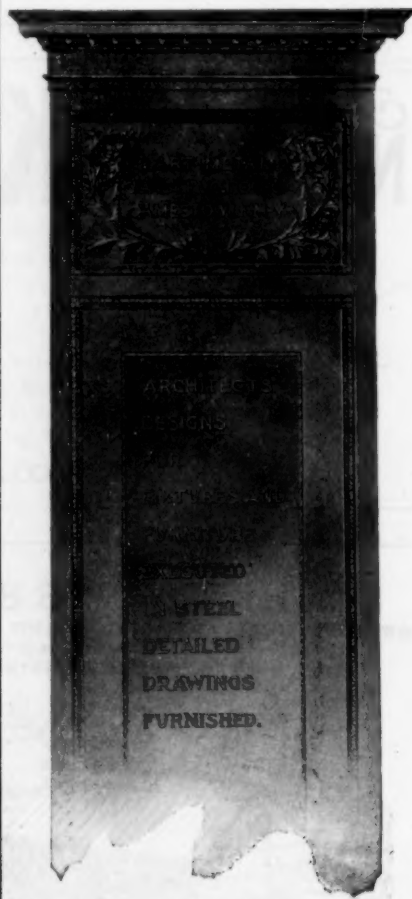
1133 Broadway - - - New York City.



TELEPHONE - 46 18th ST.

NEW YORK METAL CEILING CO.
537-539-541 WEST 24th ST. N.Y.

Boston Office: 48 Congress St., Room 24.





INTERLOCKING RUBBER TILING

as laid by us in the social hall of the Fall River Line steamer "Priscilla." It takes the place of the mosaic tile formerly used on this boat, and is preferred because, in addition to its other merits, it does not crack or come up. Cleans perfectly, shows no stains, is always bright and fresh, non-slippery, and sanitary in the highest degree. Laid directly on the decks. The only tile for marine use. Call or write.

New York Belting & Packing Co., Ltd.

New York 25 Park Place
Philadelphia 724 Chestnut St.
Chicago 150 Lake St.
St. Louis 411 No. 3d St.
San Francisco 509-511 Market St.
London, Eng. The B. & S. Folding Gate Co., 19 to 21 Tower St., Upper St. Martin's Lane, W. C.
Baltimore Baltimore Rubber Co., 101 Hopkins Place.

PERSPECTIVES RENDERED

IN PEN-AND-INK AND WATER-COLOR,
WALTER M. CAMPBELL,
8 Beacon St., Boston, Mass.

E. ELDON DEANE,

Architectural Colorist and Draughtsman.
63 Seymour Building, Fifth Ave., cor. 43d St.
NEW YORK CITY.

MASON SAFETY TREAD BEWARE OF INFRINGEMENTS

AMERICAN MASON SAFETY TREAD CO., BOSTON

J. W. TAYLOR'S PHOTOGRAPH SERIES

151 MONROE ST., CHICAGO OF AMERICAN ARCHITECTURE
Removed to Owings Building.
Send two 5 cent stamps for Catalogue.

R. P. SOUTHARD
General Supt. Building Construction
Takes entire charge of Building Operations
LARGE WORKS A SPECIALTY
Address — 1053 Exchange Building, Boston, Mass.

E. V. JOHNSON CO.

Manufacturers and Contractors

Fire-Proofing for Buildings

Latest Improved Systems

85 HARTFORD BUILDING, CHICAGO

BURGLARS

Are Kept Out by
Using our Automatic

SCUTTLE OPENERS

Patent Skylight Lift and

Ventilating Sash Locks

Send for Descriptive Pamphlets

Geo. Bickelhaupt Skylight Works

243 and 245 West 47th Street

Tel. 675-38th.

NEW YORK

"Topical Architecture"

Classified Architectural Motives and Details.

Published Monthly.

NUMBER.

1. Renaissance Doorways.—I.
2. Renaissance Doorways.—II.
3. Renaissance Capitals.—I.
4. Renaissance Capitals.—II.
5. Iron Gates and Railings.—I.
6. Iron Gates and Railings.—II.
7. Renaissance Chimneypieces.
8. Tombs.
9. Arabesques.
10. Sgraffito.
11. Ecclesiastical Domes.—I.
12. Ecclesiastical Domes.—II.
13. Renaissance Cornices.—I.

NUMBER.

14. Iron Gates and Railings.—III.
15. Iron Gates and Railings.—IV.
16. Ecclesiastical Domes.—III.
17. Lions.
18. Ecclesiastical Domes.—IV.
19. Renaissance Pulpits.
20. Ecclesiastical Domes.—V.
21. Renaissance Capitals.—III.
22. Iron Gates and Railings.—V.
23. Renaissance Cornices.—II.
24. Fonts and Stoups.
25. Iron Gates and Railings.—VI.
26. Renaissance Capitals.—IV.

40 cents per copy. 3 copies, \$1.00. Per year, \$3.00.

AMERICAN ARCHITECT AND BUILDING NEWS CO.

Lavatories in High-Class Buildings



require particularly fine and costly plumbing. Much care is required to maintain its elegant appearance. The exposed tubing must be rubbed and polished constantly.

Nickel-plated brass tubing, under this treatment, soon wears off and shows the brass underneath. Owing to this objection, many leading architects and plumbers are specifying

"BENEDICT-NICKEL"

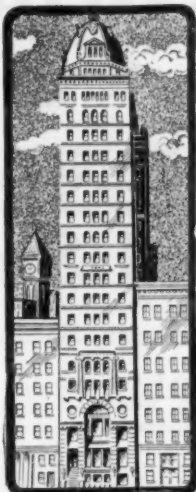
Seamless Tubing

which can never be rubbed brassy because it is white metal clear through.

"Benedict-Nickel" Seamless Tubing is practically non-corrosive. It does not rust or deteriorate at joints or connections, even after years of exposure to moisture and dampness.

Write for our useful book of tube, sheet and wire tables. It gives full particulars about "Benedict-Nickel."

BENEDICT & BURNHAM MFG. CO.
Mills and Main Office, Waterbury, Conn.
New York, 253 Broadway; Boston, 172 High Street



Put into the White House by the U. S. Government.

SEALS WITH OR WITHOUT WATER
CUELL TRAP
S. S. S. R.

For venting, use vent-top. For venting, use vented outlet.
F. E. CUELL'S
PATENT SEWER-GAS AND BACK-WATER TRAP,
For Wash-Bowls, Sinks, Bath and Wash-Tub.
West Cleveland, O.

The Soderlund Twin Faucet



And in all places where hot and cold water is used

PATENT APPLIED FOR

UNION BRASS WORKS

11 Hawkins Street, Boston, Mass.

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

the present building, and a fine new brick factory building erected, to contain all modern improvements. The improvements will cost \$30,000.

The building committee has under consideration several available sites for the proposed new county court-house, for which \$65,000 has been appropriated.

Mattapoisett, Mass.—George H. Purrington, Jr., has given the town \$10,000 for the erection of a new library building.

Memphis, Tenn.—An appropriation of \$250,000 has been made for a public building here.

Meridian, Miss.—A new jail is to be erected here at a cost of \$30,000. Plans and specifications are ready, and contract will soon be let.

Middletown, Conn.—John E. Andrews, Yonkers, N. Y.; S. H. Olin, New York City; H. C. M. Ingraham, Brooklyn, and President B. P. Raymond and S. T. Camp, of this place, have been appointed a committee to have charge of the erection of the proposed new recitation and administration building for Wesleyan College.

Minneapolis, Minn.—C. H. Chadbourn has announced that he will rebuild the Vendome Hotel, making it of fireproof construction and two stories higher. The architect is at work on plans which will call for a modern hotel in every particular; cost, \$150,000.

The Luger Furniture Co. has plans for additions to be erected to the factory at 173-183 Western Ave. It will be 75' x 150', four stories, of brick and cut stone, gravel roof, mill construction interior; cost, \$20,000.

Mitchell, S. D.—The City Council has voted to accept the proposition of Andrew Carnegie to give \$10,000 for the erection of a public library, providing \$1,000 annually is appropriated for its maintenance.

Mobile, Ala.—R. M. Milligan, of St. Louis, Mo., has prepared plans for a four-story hospital, 93' x 143', to be erected here at a cost of \$60,000.

Montgomery, Ala.—Plans have been drawn by R. M. Milligan, St. Louis, Mo., for a four-story hospital, 74' x 140', to be erected here; cost, \$50,000.

Natchez, Miss.—The bill appropriating \$75,000 for a public building at this place has just passed the Senate.

New Orleans, La.—A new federal building is to be erected at this place costing \$1,250,000.

New York, N. Y.—At the annual meeting of officers of the Hebrew Technical School for Girls, Adolph Lewinsohn gave \$75,000 toward a fund for the erection of another school-building. The president, Mr. Nathaniel Myers, added to this \$5,000. The Hebrew Technical School for Girls is at 287 Henry St.

The school to be given to Teachers College of Columbia University by James Speyer, of Speyer & Co., bankers, at 30 Broad St., and a trustee of Teachers College, will be erected in Lawrence St., nearly opposite St. Mary's Church, and will cost \$100,000, exclusive of land and school furniture. The front of the building will be of gray brick and terra-cotta, and the interior will be finished in oak, with mosaic floors. Edgar A. Josselyn, architect.

It is reported that a syndicate has purchased land at the corner of 62d St. and Broadway, upon which it may build a large apartment hotel.

Plans were filed recently at the Buildings Department for a seven-story brick theatre, to be at 207-209 W. 43d St., and 214 W. 41st St. The name of the

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

playhouse will be the New Amsterdam Theatre, and it will have a seating capacity of about 2,000. Klaw & Erlanger are the owners and Hertz & Tallant the architects. Estimated cost, \$500,000.

G. Nicholas, of 2383 Broadway, has sold for Wm. H. Falconer, 8 E. 62d St., a four-story brownstone dwelling-house. The buyer is Thos. J. McLaughlin, who will build on the site a high-class American basement dwelling-house.

It is reported that the Ward estate has sold to Warwick & Thompson the block front on the west side of 11th Ave., between 36th and 37th Sts. The buyers will build an eight-story warehouse on the site. It is said that they represent the Pennsylvania Railroad.

George H. Griebel, 247 W. 125th St., has prepared plans for a six-story brick and stone dry-goods store, 100' x 100', to be erected on the corner of 74th St. and Columbus Ave. for the Clark estate; cost, \$350,000.

Plans have been drawn by York & Sawyer, 156 Fifth Ave., for a ten-story club-house to be erected at 56 W. 40th St. for the Republican Club, now located at 450 Fifth Ave. The building will be of limestone, fireproof, and cost about \$250,000.

The Women's Hospital, now located in the block bounded by 49th and 59th Sts., Park and Lexington Aves., will erect a new building on the plot of 24 lots just purchased on 109th and 110th Sts., east of Amsterdam Ave. Francis R. Allen, of Boston, will be the architect for the new hospital, which will probably be a six-story building.

A five-story brick, stone and iron apartment-house, 50' x 150' x 25' x 150', will be erected at 35 E. 39th St., by Mr. Walter Stabler, 674 Columbus Ave., who recently purchased this property. Plans have been prepared by Architect Charles I. Berg, 571 Fifth Ave., but owner will let all contracts and is ready for estimates on material and equipment. Approximate cost, \$200,000.

Oklahoma, Okla. Ter.—A site has been selected in the northwest part of the city for the Epworth University. The buildings will cost \$250,000.

Paterson, N. J.—John W. Ferguson, contractor, 90 Washington St., has been awarded the contract for the erection of a ten-story fireproof building, estimated cost \$200,000, at the corner of Market and Hamilton Sts. Hamilton Safe Deposit and Trust Co., owners.

Mr. Bernard Katz, president of the Consolidated Brewing Co., will have plans drawn for a six-story office-building, which will take in all the land formerly occupied by the building recently burned and also the site of the Garden Theatre.

Plans have been drawn by Chas. Edwards, corner Van Houten and Carroll Sts. for a six-story store and dwelling, brick and iron construction, on plot 50' x 100' on Main St., 25' x 150' on Van Houten St., 25' x 50' on Ellison St.; estimated cost, \$20,000. Quackenbush & Co., owners.

It is reported that Marshall, Ball & Co., the clothiers, have decided to replace their building with an up-to-date six-story structure, which will run through from Main St. to Hamilton St., taking in the ground owned by the firm, and formerly occupied by the Hopper's stables.

The Paterson Evening News will erect a new building. The structure will be six stories high, the design Gothic, and the material red brick.

Charles Edwards, architect, corner Van Houten and Carroll Sts., has prepared plans for a four-story brick store and office building, 60' x 100', to be erected on Market St. for Katz Bros.; estimated cost, \$30,000.

(Advance Rumors Continued.)

It is certain that the First National Bank and Park National Bank will rebuild, and that two elegant office-buildings, seven or eight stories high will take the place of the burned structures.

The Paterson Safe Deposit and Trust Co. will erect a new building, to cost \$250,000. It is likely the work will be commenced in March.

Philadelphia, Pa.—Paul and Seymour Davis, architects, will shortly invite bids for a hospital addition to the Crozer Home for Incurables at Upland. It will be two stories high, of brick, with stone trimmings, and will be connected with the present building by a covered passageway.

Wood, Harmon & Co. have bought from D. S. Smith 14 acres of ground in Lansdowne, on the Baltimore Pike, for an important building operation.

A professors' club-house will soon be built by the trustees of the University of Pennsylvania. There will be living rooms for 100 professors. There will also be an abundance of room for the entertainment of friends, and it is planned to make social entertainments a feature of the life in the new house.

Builder William H. Allen was granted a permit to begin the erection of 5 stores and 136 dwellings located as follows: 2908-38 Oxford St., Hollywood St., east side, between 29th and 30th Sts., Myrtlewood St., both sides, between Oxford and Jefferson Sts., the northwest corner of 30th and Jefferson Sts.; 1500-1 N. Myrtlewood Ave. and 1500-1 N. Hollywood Ave. They will all be of brick, three stories in height, and will measure 16' x 29' each. The total cost of the operation will be \$322,100.

Architects W. F. Koelle & Co. have drawn plans for the erection of a new two-story brick office-building at 6th St. and Erie Ave. for Philip Hildebrand, brewer. The structure will measure 16' x 30', and estimates on the work will be taken in about ten days.

All the women's clubs of this city which are not already housed in their own homes are arranging to join forces and build a magnificent club-house to be known as the Woman's Building.

Henry S. Hale, representing a large corporation in which he is interested, has bought a large tract of land at 18th St. and Lehigh Ave., measuring 200' x 750'. On this site will be erected a series of buildings, which will be the largest manufacturing plant in that section of the city. A prominent firm of architects will be commissioned soon to draw plans. About \$250,000 will be expended on this project.

Frank D. Graham, W. H. Ramsay, B. Gordon Bromley, John F. Keator and J. M. Patterson have formed a corporation called "The Majestic Apartment-house Co." It is understood that this corporation will purchase the big brownstone mansion at Broad and Stiles Sts., formerly occupied by William L. Elkins, and erect on the site a magnificent ten-story apartment-house. The proposed structure will cost about \$1,000,000, and it is understood that a prominent firm of architects has already completed the plans and specifications.

Architect Jas. H. Windrim's plans for the splendid new seven-story fireproof buildings for Jefferson College Hospital, to be erected at the southwest corner of 10th and Sansom Sts., have been formally approved by the trustees, and early this spring it is hoped to begin the long-delayed work of construction. The new hospital, which will occupy the ground now covered by the old college building, several stores and a number of small court-houses, will front on 10th St. and will extend back along Sansom and Moravian Sts. to the present hospital. The material will be stone and brick, with stucco work decorations, and the building will in architecture conform to the new college. The old hospital is to be torn down when the new one is

American Bridge Company

OF NEW YORK.

Engineers and Contractors.

BRIDGES, BUILDINGS, ROOFS, TRUSSES.

Structural Steel and Iron.

Steel Frame Work for Factories, Sheds, Public Markets, Power Houses, Etc.

General Offices: 100 Broadway, N. Y.

European Office: London

L. L. BRIDGE, N. Y., 21-215.

PASSAIC ROLLING MILL CO., PATERSON, N. J.

Steel Beams

4 inches
to
20 inches
deep.

ALL STRUCTURAL SHAPES.
NEW YORK OFFICE . . . 45 BROADWAY.
Boston Office, No. 21 State Street.

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

completed, and the ground improved by the erection of a home for the nurses and the proposed Da Costa memorial clinical amphitheatre.

Contractors Ryan & Kelly have been granted a permit to tear down for H. O. Wilbur, the chocolate maker, 220-234 New St. It is understood that the same firm of builders will erect there a fine four-story brick chocolate factory, measuring 100' x 150'.

Pittsburgh, Pa.—A \$35,000 dwelling will be erected on Morewood Ave. and Castleman St. for Ralph W. Allison, Vice-president National Fireproofing Co.

Red Wing, Minn.—It is reported that Factory B of the Red Wing Sewer Pipe Co. was burned with a loss of \$100,000. The company may rebuild or enlarge its plant.

Renova, Pa.—The Pennsylvania R. R. Co. is to build a large new power-house here.

Rolla, Mo.—E. M. Milligan, of St. Louis, and, perhaps, other architects of the city, have submitted competitive plans for a new building for the School of Mines and Metallurgy. The building will be three stories high, and will contain 35 or 40 rooms. An appropriation of \$50,000 has been made by the State on which to begin the construction of the building, with the hope of having it finished by the beginning of the term next fall.

Rumford Falls, Me.—Architect C. H. P. Gilbert, of New York, has plans under way for a casino and club-house to be erected by the Rumford Falls Power Co.

San Antonio, Tex.—The new church to be erected for the Central Christian congregation will be located on Camden St. The building will cost \$20,000.

Seattle, Wash.—Trinity parish will rebuild its church on the old site, utilizing the old walls; cost, \$20,000. John Graham, architect.

Sewickley, Pa.—A \$35,000 residence will be erected on Grove and Centennial Aves. for Frank B. Smith, Sec'y Crucible Steel Co.

Spokane, Wash.—The United States Marble Co. contemplates establishing a mill here to cost \$75,000.

St. Albans, Vt.—J. B. Rackliffe, of the Maine Condensed Milk Co., is making arrangements for the erection of a large condensed milk factory here, at a cost of \$150,000.

St. Paul, Minn.—It is reported that the Broadway Realty Co. has purchased a site at 5th and Broadway, and will erect a six-story business building to cost about \$75,000.

Tuskegee, Ala.—Booker T. Washington announces that a friend of the Tuskegee Institute has recently given \$25,000 for a girls' dormitory building.

Walla Walla, Wash.—J. E. Rausche will erect a \$30,000 building.

Wentworth, S. D.—A movement is under way to erect a first-class hotel.

Whatcom, Wash.—Plans have been prepared for the Clover Block to be erected at Canoe and Holly Sts., two-story and basement, 50' x 100'; cost, \$40,000.

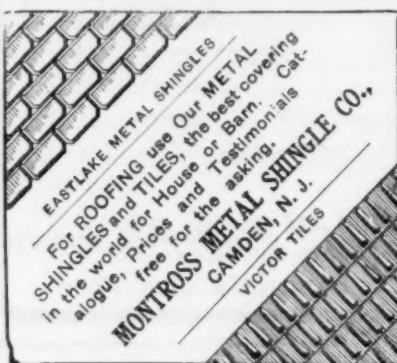
The Northwest Telephone & Telegraph Co. will erect a brick office-building.

Architect Houghton, of Seattle, will prepare plans for the new theatre, to be 80' x 165', with a seating capacity for 1,800; cost, \$50,000. Jacob Beck, owner.

Worcester, Mass.—Henry Mellen & Son have the contract for the erection of the \$10,000 stable to be erected here for John Bowler, the millionaire brewer. Will be two stories high and contain all improvements. Quarters for the coachman will be provided on the second floor.

ALTERATIONS AND ADDITIONS.

Brooklyn, N. Y.—Kent Ave., from S. 4th St. to S. 5th St., interior alterations on sugar refinery; \$70,000; o. American Sugar Refining Co., 117 Wall St., N. Y.; a. V. Wols, 479 Quincy St.



BUILDING INTELLIGENCE.

APARTMENT-HOUSES.

New York, N. Y.—E. Fortieth St., Nos. 34-36, five-sty bk. & st. apart., 50' x 150' x 25' x 150'; \$200,000; o. & b. Walter Stabler, 674 Columbus Ave.; a. C. I. Berg, 571 Fifth Ave.

Westchester Ave., nr. 152d St., five-sty bk. & st. apart. & stores, 76' x 78'; \$40,000; o. Abraham Jungman, 186 Beach Ave.; a. Moore & Landsiedel, 148th St. & 3d Ave.

Webster Ave., nr. Tremont Ave., six-sty bk. & st. flat, 75' x 145' 11"; \$125,000; o. Adolph Freund, 476 Third Ave.; a. Arthur Boehmer, 751 Tremont Ave.

Ninety-fifth St., nr. West End Ave., 2 seven-sty bk. flats, 62' 6" x 48' 6"; plastic slate roof; \$400,000; o. Abraham M. Morgenroth, 135 Heyward St., Brooklyn; a. Schneider & Herter, 46 Bible House.

Ninety-fifth St., nr. West End Ave., 2 seven-sty bk. flats, 75' x 85'; plastic slate roof; \$500,000; o. Abraham M. Morgenroth, 135 Heyward St., Brooklyn; a. Schneider & Herter, 46 Bible House.

One Hundred and Eighteenth St., nr. Amsterdam Ave., 2 six-sty bk. & st. flats, 56' x 87' 11"; plastic slate roof; \$130,000; o. John Acker, 370 Washington Ave., Newark, N. J.; a. Harde & Short, 3-5 W. 29th St.

Somerville, Mass.—Pearl and Jasper Sts., three-sty apart., 50' x 110', tar & gravel roof, hot water; \$20,000; o. Somerville Improvement Syndicate; a. W. J. Freethy, Tremont Building, Boston.

CHURCHES.

Brooklyn, N. Y.—Russell St., nr. Nassau Ave., bk. & st. church; \$50,000; o. Evang. Lutheran Church of the Messiah; a. Dodge & Morrison, 41 Wall St., New York City.

HOTELS.

New York, N. Y.—Fifty-fifth St., No. 6, nine-sty st. front hotel, 25' x 82', terra-cotta blocks; \$130,000; o. Col. John Jacob Astor, 21 W. 26th St.; a. Trowbridge & Livingston, 424 Fifth Ave.

HOUSES.

Brooklyn, N. Y.—Fourth St., nr. 8th Ave., 6 three-sty & base bk. dwells, 16' 8" x 45'; \$30,000; o. A. R. Johnson, 826 President St.; a. J. T. Allan, 3063 Clinton St.

Berkeley Road, cor. E. 13th St., 2 two-sty & attic fr. dwells, 32' x 40'; shingle roof, steam; \$10,000; o. a. & b. W. R. Lusher, on premises.

E. Fourteenth St., nr. Avenue C, two-sty & attic fr. dwell., 30' x 33', shingle roof; \$5,000; o. T. B. Ackerson Construction Co., E. 15th St. & Avenue C; a. A. W. Pierce, 1127 Flatbush Ave.

E. Sixteenth St., nr. Avenue F, two-sty & attic fr. dwell., 30' x 34'; steam; \$7,000; o. W. F. Steinmetz, 850 Flushing Ave.; a. A. W. Pierce, 1127 Flatbush Ave.

Beverly Road, nr. E. 12th St., two-sty & attic fr. dwell., 23' x 45', shingle roof, steam; \$5,000; o. W. R. Lusher, Beverly Road & E. 13th St.

Sixth Ave., nr. 56th St., three-sty bk. store & dwell., 19' x 70'; \$6,000; o. Demetrio Bua, 65th St., nr. 7th Ave.; a. H. Pohlman, 193 Fifty-third St.

Seventeenth Ave., cor. 45th St., three-sty bk. store & dwell., 19' x 70'; \$6,000; o. Demetrio Bua, 65th St., nr. 7th Ave.; a. H. Pohlman, 193 Fifty-third St.

Seventeenth Ave., cor. 46th St., 2 three-sty bk. stores & dwells, 30' x 50'; \$12,000; o. Demetrio Bua, 65th St., nr. 7th Ave.; a. H. Pohlman, 193 Fifty-third St.

Minneapolis, Minn.—Highland Ave., No. 15, two-sty fr. dwell., 32' x 48', hot water; \$5,000; a. W. S. Hunt, Insurance Exchange Building.



Architectural Sheet Metal
Ornamental Work
Cornices, Skylights
Tile Roofing
Statuary

Send for illustrated catalogue. Architects' special designs accurately produced in sheet metal. Write for our prices.

W. H. MULLINS
107 Depot St.
SALEM, - OHIO

BUILDING INTELLIGENCE.

MERCANTILE BUILDINGS.

Fergus Falls, Minn.—Three-sty bk. business building, 75' x 142', steam; \$40,000; o. E. J. Webber; a. Omeyer & Thori, Chamber of Commerce, St. Paul.

Lancaster, N. H.—Three-sty bk. bank building, 50' x 65' x 72'; \$25,000; o. Lancaster National Bank; a. R. B. Eastman, Passumpsic, Vt.

STABLES.

New York, N. Y.—Forty-eighth St., No. 608, one-sty bk. stable, 25' x 60', tar & gravel roof; \$1,000; o. Jacob Kessler, 628 W. 48th St.; a. John H. Knobel, 318 W. 42d St.

One Hundred and Fifty-first St., No. 541, two-sty bk. stable, 50' x 105'; \$14,000; o. Benedick Vetter, 768 E. 164th St.; a. Louis Falk, 2785 Third Ave.

One Hundred and Sixty-second St., nr. Melrose Ave., one-sty bk. stable & shop, 25' x 50'; \$1,800; o. Daniel Mangam, 717 E. 159th St.; a. Bronx Architectural Co., 3307 Third Ave.

Somerville, Mass.—Vernon St., nr. Central St., two-sty bk. stable, 47' x 52', gravel roof; \$5,000; o. Derby Desk Co.; b. Austin McLean.

STORES.

Newport, R. I.—Two-sty store building, 30' x 170', tin roof, hot water; \$12,000; o. F. W. Condray; a. J. D. Johnston.

New York, N. Y.—Fifty-second St., nr. 8th Ave., four-sty bk. lofts & stores, 20' x 98', plastic slate roof; \$10,000; o. W. Edgar Pruden, 861 Eighth Ave.; a. Jas. W. Cole, 403 W. 51st St.

Eighteenth St., nr. Broadway, nine-sty st. front lofts, stores & offices, 23' x 90', gravel roof; \$135,000; o. Jas. A. Campbell, 38 Park Row; a. Buchman & Fox, 11 E. 59th St.

Tenth St., nr. University Pl., ten-sty bk. & st. lofts & stores, 25' x 92', gravel roof; \$85,000; o. Philip Braender, 47 W. 125th St.; a. Fred'k C. Browne, 143 W. 125th St.

TENEMENT-HOUSES.

Brooklyn, N. Y.—Kingston Ave., cor. Dean St., four-sty bk. flat, 21' 6" x 90', steam; \$18,000; o. a. & b. Schmidt & Findelson, 1169 Myrtle Ave.

New York, N. Y.—Ninety-fourth St., nr. Amsterdam Ave., six-sty bk. tenement, 35' x 43' 3"; \$90,000; o. a. & b. Jas. D. Matthews, 1931 Broadway.

One Hundred and Eighty-seventh St., cor. Cambridge Ave., four-sty bk. tenement, 30' x 60'; \$12,000; o. Charles W. Roux, 33 First Ave.; a. Horenburger & Straub, 122 Bowery.

W. Fifty-third St., Nos. 334-336, six-sty bk. tenement, 40' x 87' 5"; \$26,000; o. & a. Samuel Greenstein, 123 Orchard St.

W. Twenty-seventh St., Nos. 145-147, six-sty bk. tenement & stores, 41' 7" x 85' 9"; \$30,000; o. Maria Wimple, 204 E. 72d St.; a. M. Bernstein, 111 Broadway.

Webster Ave., e. s. nr. Tremont Ave., six-sty bk. tenement, 75' x 145'; \$125,000; o. Adolph Freund, 476 Third Ave.

Washington Ave., cor. 183d St., 3 five-sty bk. tenements, two 34' x 47' & one 57' x 67'; \$100,000; o. Thos. F. Costello, 184th St. & Washington Ave.; a. Moore & Landsiedel, 148th St. & 3d Ave.

THEATRES AND HALLS.

New York, N. Y.—Forty-first and Forty-second Sts., nr. 7th Ave., three-sty bk. & st. theatre, 25' x 98' 9" & extension, 98' 9" x 150', tile roof; \$500,000; o. Klav & Erlanger, 1434 Broadway; a. Herts & Tallant, 32 E. 26th St.

CALIFORNIA REDWOOD LUMBER

Combines the beauty and finish of the most expensive hardwoods, is cheaper than the same grades of White Pine and will last for generations. Does not SWELL, SHRINK, CHECK or SPLIT, and EXCELS all other woods for BUILDINGS.

REDWOOD SHINGLES have no equal. Will last 50 to 75 years.

We keep in stock one inch and thicker for immediate delivery. Write us for descriptive booklet.

BARTLETT LUMBER COMPANY

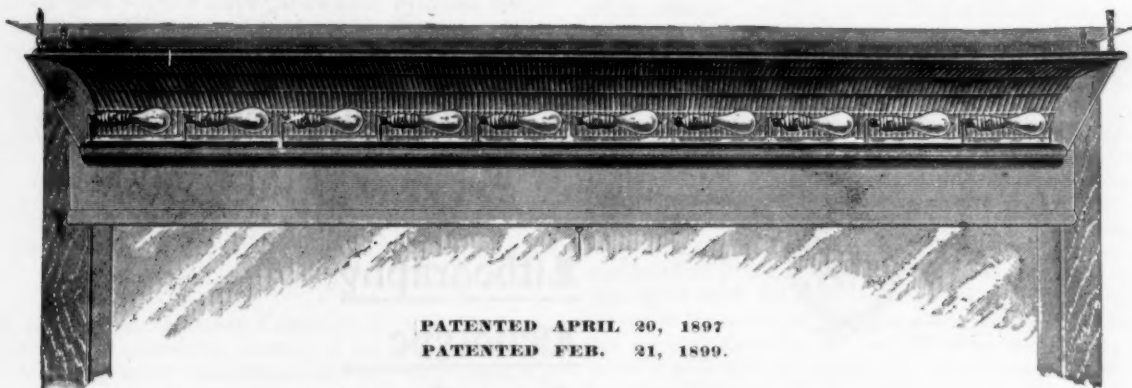
Telephone, Main 1911

Room 409, Exchange Bldg., State St., BOSTON, MASS.

Every Architect is Interested

in the problem of the perfect lighting of the modern show-window. It should be well lighted, if at all. Not a single objection can be raised against

Frink's Special Patent Window Reflector



PATENTED APRIL 20, 1897
PATENTED FEB. 21, 1899.

THE BEST STORES USE IT

HIGHEST AWARDS EVERYWHERE

Floods the window with a brilliant, even light, no dazzling glare in the eyes to obscure the vision. Permits the display to be seen to best possible advantage.

INVESTIGATION MEANS SPECIFICATION

Send for particulars on up-to-date store lighting, including our specialties in show-case lighting, and our unequalled sectional glass cluster reflectors for interior lighting. Effective, economical, durable.

I. P. FRINK, 551 Pearl Street, New York

Telephone, 860 Franklin

GEO. FRINK SPENCER, Manager.

BUILDING INTELLIGENCE.

WAREHOUSES.

Council Bluffs, Ia.—Ninth St. and Broadway, three-st'y bk. warehouse, 132' x 170', comp. roof; \$50,000; o., Groneweg & Schoentgen; a., Cox & Schoentgen.

Minneapolis, Minn.—Eighth and Washington Aves., six-st'y bk. warehouse, 153' x 211', steam; \$150,000; o., Deere & Webber Co.; a., Kees & Colburn, Kasota Block.

New York, N. Y.—E. Broadway, Nos. 31-33, ten-st'y bk. & st. warehouse, 50' x 70', concrete roof; \$100,000; o., Bertha Mandel, 289 Henry St.; a., Sass & Smallheiser, 23 Park Row.

Front St., nr. Whitehall St., five-st'y bk. warehouse, 60' x 100', tar & gravel roof; \$60,000; o., John E. Thrall, 4 Washington St.; a., Frank M. Wright, 503 Fifth Ave.

Wales Ave., cor. 150th St., five-st'y bk. warehouse, 48' x 100', concrete & tile roof; \$30,000; o., William Reubel, 3023 Third Ave.; a., Bronx Architectural Co., 3307 Third Ave.

MISCELLANEOUS.

Boston, Mass.—Lewis St., Ward 2, two-st'y fr. ferry house, 94' x 112', pitch roof, steam; \$20,000; a., H. H. Atwood; b., J. J. Flynn, 95 Milk St.

Brooklyn, N. Y.—Fulton St., nr. Red Hook Lane, five-st'y bk. café & restaurant, 52' x 121', gravel & slate roof, steam; \$125,000; o., J. & H. Liebmann, 40 E. 72d St., N. Y.; a., Herts & Tallant, 32 E. 23d St., N. Y.

Cambridge, Mass.—Massachusetts Ave., cor. Plympton St., six-st'y bk. & st. stores & dormitory, 88' x 110', steam; \$100,000; o., University Associates; a., Coolidge & Carlson; b., Conery & Wentworth, 30 Pemberton Sq.

Chicago, Ill.—Van Buren St., Nos. 136-154, Harrison St., Nos. 138-156, eight & eleven-st'y depot & office building, 195' x 215'; train shed, 215' x 676'; power house, 170' x 215'; \$2,000,000; o., Lake Shore & Michigan Southern and Chicago, Rock Island Pacific Railroad companies; a., Frost & Granger, 806, 184 La Salle St.; b., Grace & Hyde, 1408 Wabash Ave.

BUILDING INTELLIGENCE.

(Miscellaneous Continued.)

New York, N. Y.—Twenty-first St., nr. 1st Ave., 3 four-st'y & base, bk. & st. dormitories, 39' x 119'; terra-cotta & slate roofs; \$90,000; o., General Theological Seminary of the Protestant Episcopal Church in the United States, 175 Ninth Ave.; a., Chas. C. Haight, 111 Broadway.

Worcester, Mass.—Union St., bk. engine & boiler house, 60' x 60'; \$5,000; o., W. T. Merrifield estate.

COMPETITIONS.

LIBRARY BUILDING.

[At Boston, Mass.]

Competition for a new Library Building for the Boston Athenaeum. Architects may obtain the programme of competition by applying to the Secretary of their local Chapter of the A. I. A., or to J. E. COOLIDGE, JR., Secretary of the Building Committee, Boston Athenaeum, 1366

PROPOSALS.

BANK.

[At Allison, Ia.]

The undersigned hereby give notice that sealed proposals for the erection and completion of a bank building at Allison, Ia., including all labor and materials, according to plans and specifications by Omever & Thorl, architects, will be received by Geo. W. Wild, Allison, Ia., until March 11th, 1902. Plans and specifications may be seen at the office of Omever & Thorl, architects, St. Paul, Minn., or on application to the undersigned. GEO. W. WILD, Allison, Ia. C. F. PETERSON, Clarion, Ia. 1366

BUILDING.

[At New Orleans, La.]

Sealed proposals will be received at the bureau of yards and docks, Navy Department, Washington, until March 15, 1902, for constructing a brick and steel building at the naval station, New Orleans, La.

PROPOSALS.

Appropriation, \$46,000. Plans and specifications can be seen at the bureau or at the naval station named, or will be furnished upon deposit of \$10 to secure their return. MORDECAI T. ENDICOTT, chief of bureau. 1366

PIPE.

[At Riverdale, Ill.]

Sealed bids are wanted until March 11 for furnishing and laying approximately 4,400 feet of 8-inch and 10-inch pipe, including valves and hydrants. Plans and specifications on file in the office of Sturtevant & Todd, 1208 Fisher Building, Chicago. 1366

CHURCH.

[At Hancock, N. J.]

Bids are wanted until March 15, 1902, for the erection of the Methodist Episcopal Church. 1366

BUILDING.

[At Fort Wright, Wash.]

Office of C. Q. M., Vancouver Barracks, Wash. Sealed proposals will be received here until March 11, 1902, for the construction at Fort Wright, Wash., of one double barrack building, brick. For full information, plans and specifications apply to this office. J. W. JACOBS, C. Q. M. 1366

BUILDING, PLUMBING, HEATING, ETC.

[At Fort Riley, Kan.]

Fort Riley, Kan. Sealed proposals will be received at this office until March 20, 1902, for constructing the following buildings, including plumbing, heating and electric wiring: One artillery barracks and one double cavalry barracks at Fort Riley, Kan. Full information and blank forms of proposal furnished upon application to this office. Plans and specifications may be seen here, also in office of depot quartermaster at Chicago, St. Louis and Omaha. CAPT. G. O. CRESS, constructing quartermaster. 1367

BUILDING, HEATING, ETC.

[At Fort Terry, N. Y.]

Fort Terry, N. Y. Sealed proposals for constructing, heating, electric wiring and plumbing two single sets, frame, officers' quarters here, will be received

The Heliotype Printing Co.

LITHOGRAPHERS, ETC.

211 Tremont Street
Boston

FAC-SIMILE REPRODUCTIONS IN COLOR
OR MONOCHROME A SPECIALTY



Lithography
Heliotype
Color Printing
Photogravure
Maps, Plans, etc.

BEST WORK ONLY
PROMPT DELIVERY
REASONABLE PRICES

WRITE FOR ESTIMATES

PROPOSALS.	PROPOSALS.	PROPOSALS.
until March 10, 1902. Information on application, A. A. MAYBACH, Q. M. 1366	and may also be seen on application to the architect. (Signed) A. HAMMARSTEN, clerk. 1367	Treasury Department, Office Supervising Architect, Washington, D. C., February 18, 1902. Sealed proposals will be received at this office until 2 o'clock P. M. on the 24th day of March, 1902, and then opened, for the construction (except heating apparatus, electric wiring and conduits) of the U. S. Court-house, Post-office and Custom-house at Newport, Vt., in accordance with the drawings and specification, copies of which may be had at this office or the office of the Postmaster at Newport, Vt., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1366
JAIL. [At Los Angeles, Cal.] Sealed bids are wanted until March 18, 1902, for the erection of a jail; also for furnishing and installing a heating plant, elevator and complete system of cells in said building. C. W. BELL, county clerk. 1367	COURT-HOUSE. [At Sisseton, S. D.] H. A. Metcalf, county auditor, will receive bids until March 18 for the erection of a court-house, on plans by Buechner & Jacobson, architects, of St. Paul. 1367	CONSTRUCTION, ETC. [At Fort Terry, N. Y.] Fort Terry, N. Y. Sealed proposals for constructing, heating, electric wiring and plumbing two single sets, frame, officers' quarters here, will be received until March 10, 1902. A. A. MAYBACH, Q. M. 1366
COURT-HOUSE. [At Sibley, Ia.] C. W. Thomas, county auditor, will receive bids until March 20 for the erection of a court-house, from plans by Kinney & Detweiler, architects, of Austin, Minn. 1367	OFFICERS' QUARTERS. [At Fort Adams, R. I.] Office Constructing Quartermaster, 209 Thames St., Newport, R. I. Sealed proposals will be received here until March 26, 1902, for constructing, plumbing, heating and wiring 2 single sets frame officers' quarters, Fort Adams, R. I. Information furnished on application. THOMAS H. SLAVENS, Q. M. 1368	COURT-HOUSE. [At Russell, Kan.] Ira S. Fleck, county clerk, has plans and will receive bids until March 12 for the erection of a court-house, from plans by George A. Berlinghof, architect, Beatrice, Neb. 1367
SCHOOL-HOUSE. [At Cokato, Minn.] The undersigned hereby gives notice that sealed proposals for the erection of a school-house at Cokato, Minn., including all labor and material will be received by A. Hammarsten, clerk school board, until the 21st day of March, 1902. Plans and specifications, prepared by Fremont D. Orff, architect, of Minneapolis, Minn., may be seen at the office of A. Hammarsten, clerk, on and after March 5, 1902,	PIPE. [At Batesville, Ind.] Sealed bids are wanted until March 24 by the town clerk for furnishing and laying approximately 1 1/2 miles of 4-inch and 6-inch pipe, including hydrants and valves. Plans and specifications on file in the office of Sturtevant & Todd, 1208 Fisher Building, Chicago. 1363	