

THE AMERICAN ARCHITECT AND BUILDING NEWS

VOL. LXXIX

SATURDAY, JANUARY 31, 1903

No. 1414

CONTENTS.

SUMMARY:—

The Reaction against the High Building.—Automatic Fire-alarms.—A Museum's Right to dispose of a Bequest.—Death of A. J. C. Hare, Author.—Contracts made by Architects in Behalf of their Clients.—The Palace of Minos.—The Automobile as Adjunct to the Storage Battery.—Aerial Navigation.	33
FIRE-ESCAPES IN AMERICAN COMMERCIAL BUILDINGS.—II.	35
BOOKS AND PAPERS.	39

ILLUSTRATIONS:—

Front Elevation: United States Government Building, Louisiana Purchase Exposition, St. Louis, Mo.—Details of Central Pavilion of the Same.—Dining-room: House of Bradford Norman, Esq., Portsmouth, R. I.	
Additional: Fraternity House: University of Pennsylvania, Philadelphia, Pa.—Entrance Hall: House of Bradford Norman, Esq., Portsmouth, R. I.—Entrance Hall: New York Life Insurance Building, New York, N. Y.—General Office in the same Building.	39

COMMUNICATION:—

"Method of Drawing an Elliptical Arch."	40
NOTES AND CLIPPINGS.	40

SIGNS are not wanting that there will be, sooner or later, a reaction from the craze for high buildings, on account of the bad effect which they have on the streets and property around them. It is true that there is a certain convenience in having vast numbers of offices collected together, as they are in the region around the head of Wall Street, in New York; but even this convenience is to a great extent counterbalanced by the darkening of the windows, the shading of the streets, and the increase in the violence of the winds, which have followed the multiplication of high buildings; and the time is, probably, not very far off when business-men, tired of working by artificial light, and of risking pneumonia in the chilly streets, will begin to desert the narrow places, and flock to offices on Canal Street and Madison and Union squares, where they can at least have light and sunshine on one side of their office-buildings. Especially for the great banks, which tend more and more to the practice of occupying entire buildings for themselves, and do not care to have these buildings more than two or three stories high, a situation in the narrow Broadway or Wall Street, overshadowed by buildings three hundred feet high, is particularly disagreeable; and some of these, which are sure of taking their customers with them, wherever they go, would be far more comfortable in a low building, say on the sunny side of Canal Street, built around a courtyard, so that every room would have plenty of light and air. We hear a great deal about the enormous value of land on Manhattan Island, and the necessity for erecting buildings twenty stories high on it to pay interest on the investment; but London is a much larger city than New York, and Paris is little smaller, and business-men in both these places are able to manage their affairs comfortably in six-story buildings, while the public is much better off in consequence.

ONE of the recent tests of the British Fire Prevention Committee was devoted to automatic fire-alarms. Two rooms were fitted up, one representing a sitting-room in an ordinary dwelling-house, with curtains, chairs, table, covered with a cloth; unframed pictures on the walls; and decorative articles of various sorts, including a vase of dried grass, and a kerosene lamp; while the other represented an office in a Manchester warehouse, with a carpet; table, covered with a cloth; curtains, chairs; a box of rubbish, and a waste-paper basket, full of scraps of paper, shavings and so on. Both rooms were lined with matched sheathing, and each was fitted with automatic fire-alarms of two kinds, the bells of which rang in the Committee's office. The first test was made by dropping a lighted match into the waste-basket of the pretended office. The rubbish blazed fiercely, but soon went out of itself. The room was practically uninjured, and neither alarm sounded. The next test was made by breaking the kerosene lamp in the little sitting-room, the lamp being lighted at the time. The curtains immediately took fire, and, within thirty seconds after the lamp was broken, both alarms sounded at once. Half a minute later, the glass panel in the door broke and a large portion of the glass fell into the room. In three minutes from the sounding of the alarm the order was given to put out the fire, which was done with a hand-pump, a little more than a pail of water

being used. In the third test, a match was dropped into a box of rubbish in the sitting-room. The curtains immediately took fire, and were entirely consumed, and the sheathing over them was charred. The alarms sounded about a minute after the fire was set, the closed-circuit alarms sounding first. Three minutes later, the fire was extinguished with a hand-pump and a pail of water.

THE case of the Pennsylvania Academy of the Fine-Arts, which is being sued on account of its sale of a picture bequeathed to it for "permanent exhibition," appears in the newspapers with more detail. It seems that the bequest was that of a picture by Leutze, which was left to the Academy thirty years or so ago, with five thousand dollars in cash. Leutze was fond of large canvases, and, not long ago, the Directors of the Academy, finding that the picture took up a great deal of space, which was needed for other exhibits, of equal or greater interest, and forgetting the terms of the bequest, sold the picture. The son of the donor, learning what had become of it, demanded that it should be bought back, and the Directors endeavored to comply with the request; but the new owner of the picture refused to part with it except at a price which the Directors considered exorbitant; and suit has now been brought to compel either the repurchase of the picture, at any price, or the restoration of the five thousand dollars in cash which accompanied the bequest of the picture, and which, as the plaintiffs claim, was covered by the agreement implied in the acceptance of the bequest. Undoubtedly, the Directors of the Museum will give up the five thousand dollars, rather than be compelled to buy back at a high price, and place permanently on their walls, a picture which they do not care to keep; but they do not consider that they can be required to forfeit the money, and it is this point which is to be tried.

SO many architects have used Mr. Augustus J. C. Hare's "*Walks in Rome*" as a guide-book in the Holy City that his death has a certain interest for the profession. Mr. Hare might, perhaps, be called the most noted diner-out and society-man in England, if not in Europe; but he was also a devoted and intelligent lover of history and antiquities, and such leisure as he could get from his social duties was spent in compiling the clever and instructive books of which the "*Walks in Rome*" and the "*Walks in London*" are the best known.

A MATTER of great importance to architects has been decided, not for the first time, in an English court. A Mr. Arber, a well-known English architect, was engaged in the construction of a theatre. In the course of the work, it was found necessary to add a porch, which had a certain amount of metal-work in it. The architect wrote to a firm of metal-workers, and received a reply, and in accordance with this correspondence ordered the work done. Later, the metal-workers sued the architect for the value of the work furnished on the porch. The judge gave a decision at once in favor of the architect, saying "the sole question was whether it was the intention of the parties that there should be a contract between them." In answering that question he went by the plaintiffs' evidence alone, without paying any attention to that on the other side; and it was obvious, by the testimony of the metal-workers themselves, that they knew that Mr. Arber was acting as architect on behalf of some one else; and the evidence contained nothing to show that there was any intention or understanding that he should be considered otherwise than as the architect, or that he should be personally liable. If the plaintiffs wished to know the name of the principal for whom Mr. Arber was acting, it was their business to inquire.

THIS case puts very concisely the view of the law in regard to contracts made by architects in behalf of their clients, a view which, it is needless to say, has been upheld in many decisions; so that architects who order, for their clients, work or materials from people who know them to be architects, acting for other people, need not be at all alarmed by the threats which are often made to hold them personally liable. The claim sometimes made, that the architect should say whom he is

acting for, if he desires to protect himself from liability, is entirely groundless. It is the dealer's duty to ask about this, if he desires to know, not the architect's to inform him; and, unless fraud or collusion between the architect and his client could be proved, it would be practically impossible to enforce any liability on the part of the architect. At the same time, the ordinary practice of architects, of giving all dealers a wide berth who insist on making out their bills to the architect, or in other ways attempting to influence him, is a wholesome one, and it may confirm the courage of young and timid architects, who fall into the hands of such people, to know that their threats cannot be carried into execution.

DR. EVANS, the distinguished explorer of the palace of Minos, in Crete, recently delivered a lecture before the Royal Institute of British Architects on the present state of the explorations. Our readers will remember the discovery of the Labyrinth, built by Dædalus for King Minos, in which Theseus, guided by the silken string of which the Princess Ariadne held the end, found and slew the Minotaur; and that of the seal, apparently representing the Minotaur itself, in the shape of a man, with the head of a bull, seated on a throne; but they will hardly be prepared for the multitude of details of the palace which have since been brought to light. Among these are several staircases, rooms and passages beautifully decorated with figure-subjects in color; and, most curious of all, a rather elaborate system of plumbing, including drain-pipes of terra-cotta, apparently jointed with cement. In the upper story of the palace are many small rooms, apparently sleeping rooms for the royal family and attendants, and several of these have little toilet-rooms attached, one still showing, after the lapse of four thousand years, the remains of the wooden seat of a water-closet, with its drain-pipe and a flush-pipe for supplying it with water. The date of all the constructions is fixed with tolerable exactness by the Egyptian objects found in them; and it appears from these that the existing palace was a rebuilding, or restoration, of a still more ancient one, which contains, buried under the present pavement, Egyptian fragments nearly six thousand years old; and still further excavation shows that this more ancient palace covers the site of a populous neolithic village, far more ancient still. It is a curious confirmation of the ancient reputation of Minos as a wise ruler, a reputation which led Dante to make him the administrator of the infernal regions, that the vast palace shows no signs of fortification. It was, it is true, built around an enclosed court, but there were four entrances to the court, and the subjects of the great King seem to have had free access to him.

FRENCH owners of automobiles have devised a novel method of utilizing them, which has already become quite popular in France, and would be very useful here in many cases. For family automobiles, which have to take long journeys, machines have been constructed, driven by gasoline or petroleum, which, instead of acting directly on the wheels, propel a small electric generator, which, in its turn, charges a storage battery; and from the storage battery current is taken for propelling the automobile. There are several advantages in this plan. As the machine is not directly connected with the wheels, it can be continuously in operation, storing up electricity for subsequent use, and the control of the carriage is greatly simplified. It is, however, when the carriage returns to the house of its owner that its valuable properties are chiefly manifest. As soon as it is safely moored in its stable, connection is made between its storage battery and the wires which supply current to incandescent lamps in the house; and, the engine continuing to work, the lights are maintained throughout the house until bedtime, when they can be turned off, and the automobile suffered to rest until the next morning. Naturally, if the proprietor is belated, so that he does not reach home with his automobile until after dark, his family have to go without light until he arrives; but this probably makes their welcome only the warmer; and such occasional mishaps do not seem to have interfered with the popularity of the system, which has given satisfaction in several country-houses where it has been installed.

EVEN without the automobile, very successful results have been obtained in house electric-light plants with small gasoline or oil engines, similar in construction to those used for automobiles, directly connected with the generator,

and supplying lamps, either directly, or through a storage battery. The space occupied by the machine is almost infinitesimal, in comparison with that required for the ordinary gasoline or oil engine, and the results seem equally good. Very few country-houses need to have more than sixty to seventy-five lights burning at once, and this is well within the capacity of an automobile engine, particularly if a storage battery is used.

MR. HIRAM MAXIM is reported as having spoken very discouragingly of the achievements and prospects of M. Santos-Dumont in the navigation of the air; and, according to the newspapers, his opinion has had so much influence in certain quarters that the proposed competition of navigable airships, which was to form one of the principal attractions of the St. Louis Exposition, next year, and in which M. Santos-Dumont was to appear, is likely to be abandoned. With all respect to Mr. Maxim, as an inventor of great talent, we cannot feel that his opinion on the subject is justified. It is true that he has spent a large sum of money in experimenting in air-navigation, but his experiments, so far as we know, have been devoted entirely to soaring machines, and have hardly progressed beyond the rudimentary stage. In opposition, moreover, to his opinion that the Santos-Dumont machines have failed is the incontrovertible fact that they have, on several occasions, sailed over a given course, several miles in length, and have returned safely to their starting-point; and in one instance, at least, as is clear from the photographs of the flying-machine, independent of the unanimous testimony of witnesses, the flight was accomplished during a moderate breeze. When it is considered that the machine which has achieved these results is hardly more than a small model, capable only of carrying one person, it is certainly fair to infer that a larger and stronger one would be able to do much more. As a matter of fact, M. Santos-Dumont is at this moment constructing an air-ship large enough to carry twelve passengers, with the idea, apparently, of earning a little money to continue his experiments, which have been a heavy burden for a man by no means rich; and it is this more powerful machine, rather than the fragile models, which will indicate what the future has in store for air-navigation.

MR. MAXIM says, very truly, that a high wind would interfere seriously with the movements of M. Santos-Dumont's present craft; but so did tidal currents interfere very seriously with the navigation of the sea in ancient times; and, judging from analogy, it will be quite as easy to overcome currents in the air by increasing the size and power of air-ships, as it has been to eliminate the effect of currents in the sea by increasing the size and power of vessels. In order, however, to make the trial on an adequate scale, money is required, and anything is to be regretted which delays the time when the necessary funds can be made available. M. Santos-Dumont, who knows better than any one else what he can do, is said to have offered to sail across the Pacific Ocean if about a hundred and fifty thousand dollars could be raised to build a suitable craft; but no one could be found to subscribe the necessary sum. It is possible that private individuals may not feel that they are sufficiently concerned in such an enterprise to put their hands in their pockets to help it; but it is surprising that the enormous military significance of what has been done in France should not be better understood. Congress will be asked at this session to appropriate money for building at least two new warships, at a cost, with their equipments, of at least two and a half millions each. Suppose that, instead of building two ships, one should be ordered, and the money which would be needed for building and equipping the other should be turned over to M. Santos-Dumont, as auxiliary naval constructor, for producing a certain number of craft, principally for coast defense, but having a certain "radius," as the naval officers say, for operations beyond their stations. Can any one doubt, in view of what M. Santos-Dumont has accomplished with a few thousand dollars, that, with fifty times the amount, he could make it impossible for a hostile ship to reach our shores, even if he did not put into our hands the means, if we chose to use it, of annihilating fortresses, naval stations or camps in any part of the world? It is the part of wisdom; not only to provide for one's own defense, but to secure the best possible service for doing so; and, efficient as our naval vessels are, their military capacity is trifling in comparison with that of the smallest air-ship which could steer itself against a head wind, and keep afloat, with a crew of ten men, for a week.

FIRE-ESCAPES IN AMERICAN COMMERCIAL BUILDINGS. I — II.

DIRECT MEANS OF ESCAPE.

MANY city ordinances, as above referred to, specifically empower the authorities to demand, where necessary, the provision of adequate means of escape from the majority of buildings. This applies to old and new buildings alike. With regard to old buildings, however, it appears that constitutionally it is difficult, if not impossible, for the authorities to sustain a demand which would entail internal structural alterations.

The Chicago Building Ordinance emphasizes this point by stating that excepting in cases where the immediate safety of the occupants

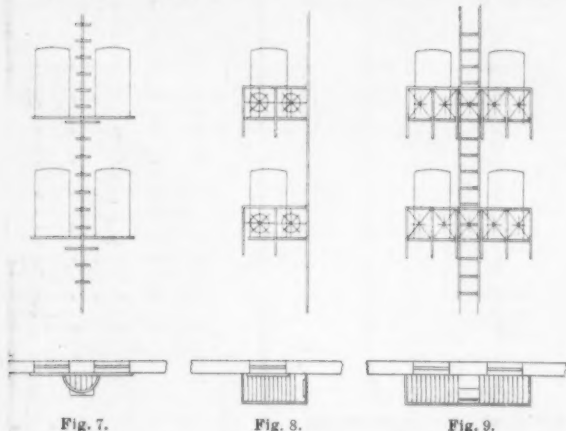


Fig. 7.

Fig. 8.

Fig. 9.

of buildings is concerned, nothing in the ordinance shall be considered as requiring alteration or equipment of buildings existing at the time of the passage of the ordinance, and at that time complying with the ordinance then in force.

Retrospective legislation is weak. On the other hand, no difficulty is experienced in a demand for an addition to an existing building. It is possible, therefore, to add to any building external fire-escapes, ladders, balconies, etc.

Although there are regulations in force in some parts which call for movable fire-escapes, such as ropes to each bedroom window in hotels, they are widely regarded as escapes of suspicious value. Many ingenious appliances have been introduced to meet the need of a ready means of escape; but canvas chutes, wire ladders and other movable forms have been found wanting under actual fire-tests. Ropes are difficult to descend by any except athletes, and they are an impossible form of escape for females; canvas chutes require skill and care in their manipulation, and demand from those about to descend nerve and courage. All these proposed forms of fire-escape may be found out of order upon the emergency for which they were provided. Further, the occupants or employees may be unable to work them or may be ignorant of their use. In addition, the disturbance caused by an alarm of fire may be such as to upset all pre-conceived arrangements for the operation of these escapes. An illustration of this occurred recently in one of the American cities where a weaver, fearing that he might be unable to escape rapidly down his staircase in case of fire, fastened a rope to the loom at which he was constantly working, and coiled it on the sill of the window by his side. An alarm of fire did occur, when he immediately opened his window and, neglecting the means of escape prepared by himself for his own use, and with which he was entirely familiar, leaped through the window over the coiled rope, and was killed upon the pavement beneath.

At a critical moment, should many persons be depending upon such or similar unsubstantial appliances, the risk of failure is increased. The well-known form of American fire-escape which is so obtrusively in evidence has been evolved from many experiments, and it must be judged as an appliance which, while open to several objections, meets the requirement for a comparatively inexpensive article, and can be applied to the majority of buildings. Some of the forms taken by these escapes are indicated in Figures 7, 8, 9, 10 and 11. Figure 7 is an old form, and consists of an upright iron post with cross-pieces at intervals for foothold, carried up the front of a building; access is obtained to it from adjoining windows by means of small pierced-iron landings. Only athletic and cool-headed men could be expected to descend such a contrivance, and then only



Fig. 10.

under the most favorable circumstances. Figure 8 illustrates an improved form of escape which provides a small iron balcony at window-sill level with a balustrade and vertical iron ladder at one end, down which persons can escape by small manholes in the flooring of the balconies at each level.

Figure 9 is a modification of the last form, with the ladder in the

centre of the balcony facing the street. Objection may be taken to these appliances on the ground that there is no protection afforded to persons descending in the event of fire bursting out from openings below them. The vertical form of ladder is also an objectionable feature. Efforts have been made to obviate the difficulties by such contrivances as those illustrated in Figures 10 and 11. These can be placed opposite a wide pier or blank wall, and afford to some slight extent an easy form of descent. As will be readily seen, these latter forms naturally require a great projection over the public way. Direct supports from below are unobtainable, and the staircases, therefore, must be hung up to the face of the building.



Fig. 11.

Figure 12 is a simple but excellent form of escape. A balcony gives access to and from the windows of adjacent buildings. In the event of fire persons may rapidly and safely escape on the level into an area unaffected by flame or smoke, and by whatever means this object is attained it is satisfactory. As may be seen, this form of escape is only possible where the two buildings are in one ownership, or where adjoining owners are willing to cooperate. Figure 13 is the plan of a pair of New York tenement-houses which readily lend themselves to this method of escape. The modern form of escape in general use may be gathered from Figure 14. This is the form required by the New York State Department of Labor and illustrated upon its notice for fire-escapes.

In this case balconies not less than 6 feet long and 3 feet wide, and embracing two windows, are provided at each sill-level, and slanting stairways give easy communication from floor to floor. At about the first-floor level a counterbalanced drop-ladder is provided. The illustration shows the ladder suspended vertically. Under some city ordinances it is hinged and suspended, so that when lowered it forms a sloping stairway similar to those above. The specification given below for these balconies will indicate the extremely light form of construction adopted. Accidents, however, from this cause are practically unknown.

"The brackets must not be less than $\frac{1}{2}$ " x $1\frac{1}{2}$ " wrought-iron, placed edgewise, or $1\frac{1}{2}$ "-inch angle-iron, $\frac{1}{4}$ " inch thick, well braced, and not more than 3 feet apart (unless to obtain headroom at balcony-openings); and braces to brackets must not be less than 1 inch square, wrought-iron, and must extend two-thirds of the width of the respective brackets or balconies. In all cases the brackets and braces must go through the wall, and be provided with screw-nuts and

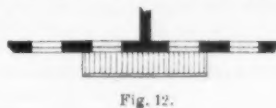


Fig. 12.

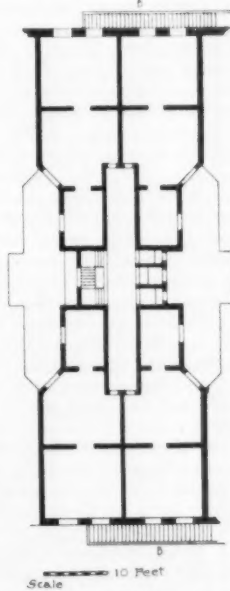


Fig. 13. Plan of a New York Tenement-house; BB, Escape Balconies.

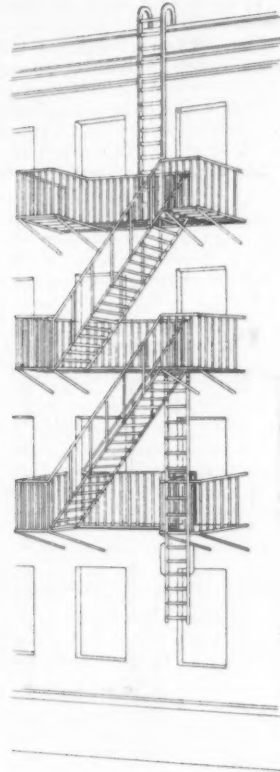


Fig. 14. Illustration of the Fire-escape required under the New York Labor Law.

washers not less than 5 inches square and $\frac{1}{2}$ " inch thick; washers must be provided on the outside of the wall on brackets $\frac{1}{4}$ " inch thick and 3 inches square. The part going through the wall shall not be less than 1 inch in diameter.

"Top rails of balconies must be $1\frac{1}{2}$ " x $\frac{1}{2}$ " wrought-iron, or $1\frac{1}{2}$ "-inch angle-iron, $\frac{1}{4}$ " inch thick, and in all cases must go through the walls and be secured by nuts and 4-inch square washer on inside of

¹ A paper by Mr. Charles A. Daubney [A.], *Godwin Bureau* 1902, F. S. I., read before the Royal Institute of British Architects, and printed in the *Journal of that Society*. Continued from No. 1413, page 30.

wall, at least $\frac{3}{8}$ inch thick; and no top rail shall be connected at angles by the use of cast-iron.

"Bottom rails must be $1\frac{1}{2}$ " x $\frac{3}{8}$ " wrought-iron, or $1\frac{1}{2}$ " x $1\frac{1}{2}$ " inch angle-iron, $\frac{1}{4}$ inch thick. Where, in order to obtain head-room in balcony-openings, the central brackets are placed more than 3 feet apart, 2 " x 2 " angle-irons, $\frac{1}{4}$ inch thick, must be used for bottom rails. In frame buildings the top rail must go through the studs and be secured by washers and nuts, as in the case of brackets.

"Connections or filling-in Bars.—Top and bottom rails may be connected by $\frac{3}{4}$ " x $\frac{1}{4}$ " iron, not more than 3 feet apart, with $\frac{1}{4}$ " x 1 " iron cross-bars, all well riveted at top and bottom and also at crosses. If filling-in bars are used, they must not be less than $\frac{1}{2}$ inch round or square, wrought-iron, placed not more than 6 inches from centres, and well riveted to the top and bottom rails.

"Stairs in all cases must properly incline, and be not less than 18 inches wide, and constructed of $\frac{1}{2}$ " x 4 " wrought-iron sides and strings. Steps must be of not less than 6 inches treads, not more than 9 inches apart, and $\frac{1}{2}$ " x 1 " wrought-iron, and 1 inch apart, and well riveted or bolted to the strings. No cast-iron steps shall be used. The stairs must be secured to a bracket on top, and rest on and be secured to a bracket or cross-bar at the bottom. All stairs must have a $\frac{3}{4}$ -inch handrail of wrought-iron on both sides, well braced and securely fastened.

"Floors of balconies must be of wrought-iron, 1 " x $\frac{1}{4}$ " slats; placed edgewise, not over $1\frac{1}{2}$ inch apart, with three rows of thimbles strung on wrought-iron rods running through and well fastened at the ends. Flooring must be fastened to bottom rail with $\frac{3}{8}$ inch round wrought-iron clips not more than 4 feet apart. The openings for stairways in all balconies shall be not less than 20 inches wide and 3 feet long, and have no covers. The sides of each such opening shall be guarded by a rail.

"Drop-ladders from lower balconies, where required, shall not be less than 12 inches wide, and shall be made of $1\frac{1}{2}$ " x $\frac{3}{8}$ " sides and $\frac{5}{8}$ -inch rungs of wrought-iron. The drop-ladder shall be a balance-weight ladder, hung to bottom of a second balcony by a chain running over loose pulleys securely fastened. The ladder must be securely held in place at lower balcony by clips so arranged as to allow free movement of the ladder up and down. Pulleys and clips should be made to work free, so that rust will not interfere with the use of the ladder. A 24-inch ladder shall extend from the upper balcony to 30 inches above the roof. In no case shall the ends of balconies extend more than 9 inches over the brackets.

"The height of railing around balconies shall not be less than 3 feet."

These escapes must be connected with the interior by easily accessible and unobstructed openings.

The Michigan Bureau of Labor demands that the windows and doors leading to all fire-escapes shall open outwards or upwards when provided with a counterbalanced weight, such windows to be not less than 36 inches in height and width. Chicago requires that the floors of these balconies shall be constructed either of heavy cast-iron, ice-proof, or steel, and capable of carrying not less than 500 pounds.

The Philadelphia requirements call for a strength of 80 pounds per

foot super. upon the balconies, and 200 pounds per tread upon the ladders.

Under the New York Building Code, the Department of Buildings has full and exclusive power to require the erection of these fire-escapes. The buildings affected by this regulation comprise dwelling-houses occupied by three or more families, three-story hotels and lodging-houses, boarding-houses with more than fifteen bed-rooms; factories, mills, manufactories, hospitals, asylums and all three-story workshops and stores, school and five-story office buildings.

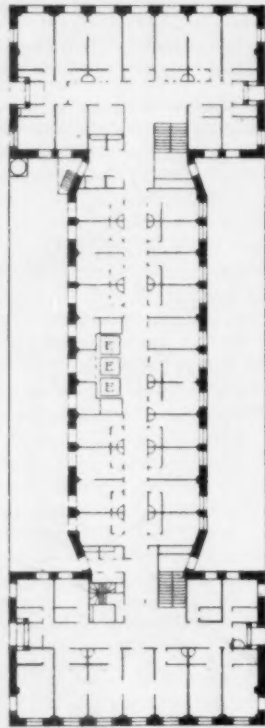
The New York State Tenement-house Law calls for fire-escapes directly accessible from each apartment, but in old non-fire-proof tenement-houses the party-wall balcony escape referred to above is accepted as a substitute, provided it leads to another building, and the two buildings are completely separated by an unpierced wall.

The Rochester (N. Y.) Penal Ordinance relating to buildings can require fire-escapes on all manufactories, factories, and three-story hotels, etc.

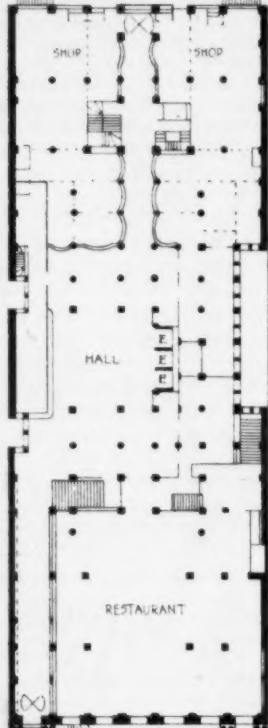
The Buffalo and Philadelphia regulations cover a somewhat simi-

lar class of buildings, while the Chicago ordinance insists that, with few exceptions, all buildings shall have at least one of these iron escapes.

Figure 15 is the plan of a tenement factory, on which fire-escapes were ordered. The building consists of a central hallway extending from front to rear and containing an open structure, a passenger-lift



Upper Floor Plan of Martha Hotel, New York



Ground Floor Plan of Martha Hotel, New York

Fig. 16. E E, Passenger-lifts; F. E., Fire-escape; H, Goods-lift.

Fig. 17. E E, Passenger-lifts; H, Goods-lift.

Mr. R. W. Gibson, Architect, New York, N. Y.

in the front portion, and a goods-lift at the rear. Immediately upon the outbreak of a fire the central hall would probably be filled with smoke, and thus rendered impassable. The authorities have therefore demanded a fire-escape at the rear, and communicating balconies at the front, affording means of access from one side of the building to the other.

Instances may be quoted where upon an outbreak of fire this form of escape has proved wanting, owing to the occupants crowding upon one which was involved in flame and smoke. On the other hand it appears that the greater proportion of persons whose lives are imperilled readily escape unassisted by means of these external iron stairways, while a large number in addition, who through injury, fear, or other causes are unable to escape, are rescued by the Fire Department down these escapes.

In many of the principal cities in the United States a permit must be obtained from the Building Department prior to the commencement of building operations. As a rule, complete plans and details must be supplied before the permit is obtained, and a full opportunity is therefore afforded to secure what is required by law on all questions, including those relating to means of escape. As a rule, the building-codes specifically state what shall be provided in new buildings. The question of escape to a large extent resolves itself into the adequate provision and protection of the ordinary stairways, with the addition of some alternative means of escape. Some of the conditions governing a good escape staircase are as follows:—

- (1) It should be situated in a convenient position.
- (2) Easy escape up to and by it should be maintained.
- (3) It should be sufficient to accommodate the maximum number of persons who may be called upon to use it at one time.
- (4) It should be separated from the building and protected from all dangerous elements.
- (5) It should deliver at ground-level into the street.
- (6) It should be in ordinary use by the employes or occupants of the building.

The New York Building Code provides that all new buildings, such as stores, factories, hotels, or lodging-houses, with an area of between 2,500 feet and 5,000 feet, shall have at least two continuous lines of stairs remote from each other, and an additional line of stairs for each 5,000 feet of area in excess of the first 5,000 feet.

Figures 16 and 17 illustrate the plan of an hotel recently erected in New York. Two lines of stairs have been provided, one at each

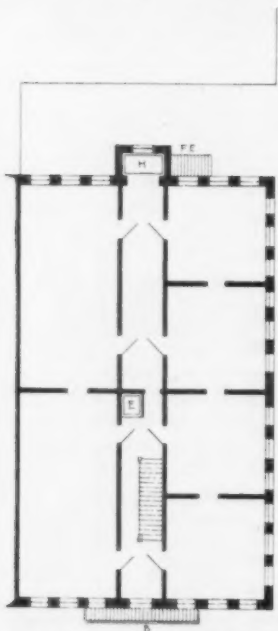


Fig. 15. Plan of a Buffalo Tenement Factory. E, Passenger-lift; H, Goods-lift; F. E., Fire-escape; B, Escape Balcony.

end of the main corridor. Fire-escapes are also provided. It may be noted, however, that the staircases deliver into a shop or restaurant on the ground-floor, and are unenclosed. A fire upon the ground-floor would probably render the whole of the corridors on the upper floors impassable. In the disastrous fire at the Hotel Windsor, in New York, on March 17, 1899, many of the visitors lost their lives owing to their inability to reach the staircases.

In buildings above 15,000 feet in area the number of stairs must be proportionately increased, or as the Commissioner of Buildings shall decide. He has adopted the following regulations for stairs and exits in such buildings: They must have at least four continuous lines of stairs, none less than 3 feet wide; one flight at least shall be provided for each 10,000 square feet, and they shall be so placed that it shall not be necessary to travel more than 100 feet to reach any one flight. The number of persons to be accommodated in the building shall be calculated at one for each 10 square feet of floor-area in stores; at one for each 20 square feet of floor-area in factories; and at one for each 50 square feet of floor-area, or two for each room, in hotels and lodging-houses; and the minimum total width of stairs at any one story must be equal to one foot for each 100 persons to be accommodated upon the largest floor. This width must be increased beyond this minimum by 6 inches in stores, and 3 inches in factories for each 10,000 square feet of floor-area of each story above that floor. Ground-floor exits must be at least 4 feet wide, and the total widths of all exits must be equal to the widths of the staircases from the first floor. It is not compulsory for these stairs to be enclosed, but if they should have fireproof enclosures external fire-escapes may not be required. Doors leading to enclosed stairs must be at least as wide as the stairs, and never less than four feet. If passenger-lifts are enclosed in solid shafts, they are looked

upon as of some value as means of escape, and a reduction in the number of persons to be accommodated in the building will be allowed at the rate of one person for each $\frac{3}{4}$ square foot of car-floor surface.

It will be noted that, unfortunately, the office-buildings do not come within the scope of this clause, and the modern tall buildings of this class in New York can therefore be erected with unprotected staircases, etc. But as power is given to the Department of Buildings to require fire-escapes upon the outside of all buildings, building-owners are careful to provide satisfactory internal stair-accommodation.

Reference has already been made to the unprotected nature of the staircases, halls, etc., in these buildings.

Under the New York Tenement-house Law new non-fireproof tenement-

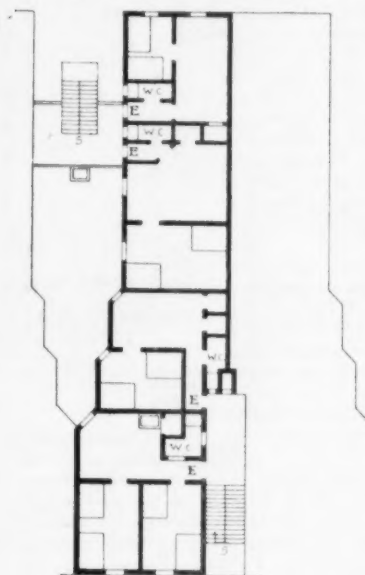


Fig. 18. S S, Open Staircases; E E, Entrances to Tenements.

Mr. R. W. Gibson, Architect, New York, N. Y.

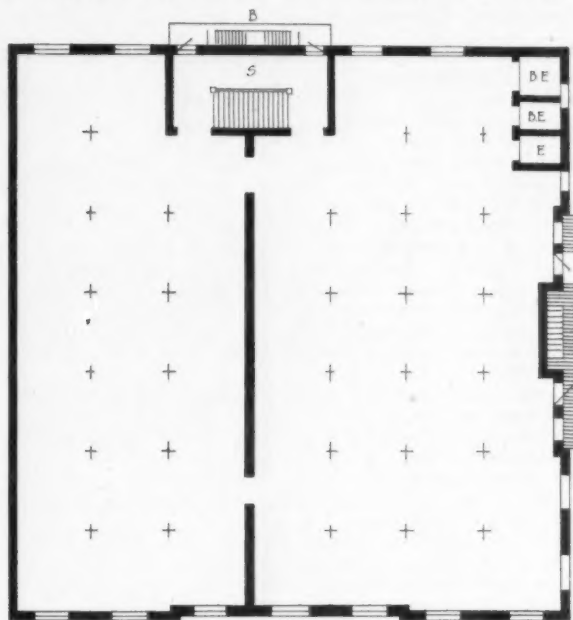
houses must have fireproof outside stairways, otherwise fire-escapes will be called for. Figure 18 gives a plan of a New York tenement-house as may be now erected. One flight of stairs, at least, shall extend from the ground-floor level to the roof, and be not less than 3 feet wide for the first twenty-six suites, and an additional flight of stairs for every additional twenty-six suites. Fireproof buildings of this class require a stairway for each thirty-six suites, but an enclosed power-lift, not less than 36 feet from the main staircase, is considered equivalent to an additional staircase. In all such buildings over three stories high the stair-hall, including the staircases, must be fireproof throughout. In non-fireproof buildings they must be enclosed with brick walls, self-closing doors, and wired-glass must be provided to all openings in the enclosures. Rochester and Buffalo require workshops and sale-rooms to have two staircases 3 feet wide for 100 persons, and 5 feet wide for 300 persons, and three staircases 5 feet wide for 800 persons. One less flight of stairs in each case is allowed if the building is fireproof.

Chicago has somewhat similar regulations, but demands at least two staircases if the floor-area is over 7,000 feet, and that no staircase shall be constructed around or along open lift-shafts in buildings over four stories high.

Office-buildings of ordinary construction of less than 2,000 feet area require one staircase 5 feet wide, or two staircases 3 feet wide, in buildings of ordinary construction, with another staircase for each additional 2,000 feet.

Although, as may be noted from the above summaries, provision is made in many instances for the number and width of staircases, enclosures are not provided for in every case. An open stair-

case admittedly forms but an imperfect line of escape in case of fire. In many instances owners, at the instance of the insurance-offices, have built in advance of building-requirements. Figure 19 is the plan of a Detroit factory which has been provided with the statutory external fire-escapes. By sacrificing a small amount of floor and wall space, the staircase next the side street has been well protected from a possible outbreak of flame and smoke on either side, and



Plan of a Detroit Factory.

Fig. 19. S, Iron Staircase; R, External Fire-escape and Balconies; B E, Goods-lifts; E, Passenger-lift.

could be easily reached from any floor-level by means of the doorways at each end of the balconies in connection with the staircase. A somewhat similar fire-escape is also provided adjoining the main staircase. The lifts have brick enclosures and solid hardwood doors. Floors are fire-resisting, and the main staircase is of iron enclosed in brick walls. The doorways, however, to this staircase are hung with sliding tin-covered doors, which will close automatically when a small twine fastening is burned through.

The addition of self-closing doors to these doorways would protect the staircase from smoke, and it appears that the external fire-escape at the rear would then be unnecessary.

The building-ordinance in Pittsburgh is a Pennsylvania State law, and demands that exit staircases shall be enclosed. No provision, however, is made for the protection of the doorway-openings. As above mentioned, this is an essential provision if a staircase is to be depended upon as a means of escape by persons upon an upper floor. The ordinance requires that two-story schools, churches, public buildings, hotels, factories, etc., shall have at least one brick-enclosed staircase, with no interior openings other than those which afford exit from the different parts of the buildings; three-story stores more than 4,000 feet floor-area on any floor above the first floor may have an enclosed "tower" fire-escape on one of its fronts. Such an escape will be equivalent to external iron fire-escape of the class illustrated in Figure 14. Two external fire-escapes can be demanded if a building can accommodate 100 to 500 persons, and more than two if the internal stairways are liable to be blocked with smoke, and persons may not speedily and safely escape.

An objectionable feature of the form of "tower" fire-escape as specified by this ordinance is the permission it gives for it to be made in circular form at the lower end. Figure 20 illustrates an old form of tower fire-escape, which, however, is now out of date. Circular stairs are, as a rule, quite unsuitable for purposes of exit in time of need. Figure 21 illustrates an effort to surmount the possibility of an external staircase becoming impassable through smoke and flame entering the enclosure through doorways. The circular iron



Fig. 20.



Fig. 21.

staircase is attached to the face of the building and enclosed in corrugated-iron sheeting, with approaches on either side along small balconies.

The Philadelphia requirements as to means of escape are also contained in a Pennsylvania State law. The "tower" staircase above referred to is applied generally to new buildings where escape is required. Figures 22, 23, 24 and 25 illustrate the plans of this

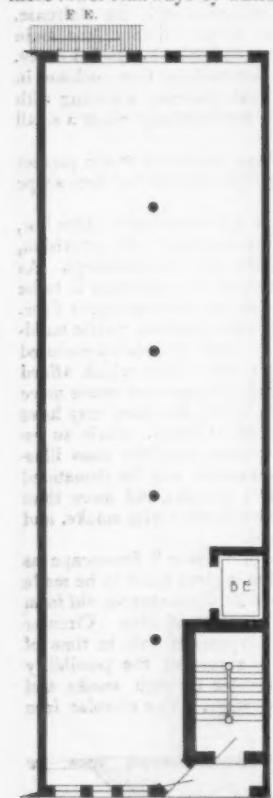
form of stairway. Figure 22 shows the "vestibule tower" stairway. A brick-enclosed staircase is erected adjoining the main street-front. Entrances to the floors and the staircases are provided off a concrete "vestibule" at each floor-level. Fire in the building cannot reach the staircase which is the exit in every-day use by the employés. In this example a brick-enclosed lift with fireproof doors is used for the transference of goods from floor to floor; and as the floors are unpierced by other openings, the risk of fire spreading upwards is slight. Should a fire break out on any floor near the front window, a light iron external balcony ladder is provided at the opposite end of the building for escape.

Figure 23 illustrates a "balcony tower" escape in which an external balcony takes the place of the concrete landing provided in the "vestibule" escape. This plan shows a floor of a tenement factory in which power, light, etc., are supplied to the occupants by the owner of the building. The main-entrance stairway-enclosure contains a freight and passenger lift, and is used in common by the various tenants: under such circumstances this staircase cannot be considered as a good means of escape, as the landings may be lumbered with goods. The fire-risk inside such a staircase-enclosure is considerable. To meet this risk a properly separated staircase is provided at the other extremity of the building, and as this staircase is used by the employés in entering and leaving the building, it has been found to be a satisfactory form of exit in time of emergency.

Figure 24 shows a plan of a large manufacturing-establishment in which many persons are employed. A party-wall with openings protected with doors divides the fire-risk. Stairs entirely separated from the main building are constructed at each end of the block, and as an emergency-exist an external iron fire-escape is provided in the centre of the building, approached by balconies from windows on either side of the party-wall.

Figure 25 illustrates some of the exit stairs provided on one side of a large store building in Philadelphia. Here balconies extend for a considerable distance along the front communicating with two isolated stairways delivering directly at pavement-level. On this frontage the whole of the windows are glazed with wired-glass and further protected by sprinklers attached to each window-head.

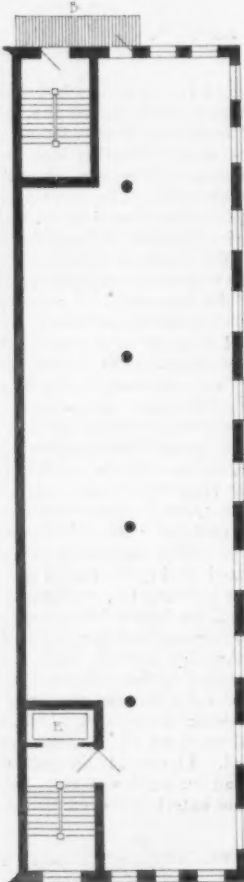
The Building Department in Philadelphia have under consideration a specification governing the construction of these tower stairways by which an objec-



Plan of a Philadelphia Factory

Fig. 22. F.E., Fire-escape; G.L., Goods-lift.

tionable constructional detail in some of these staircases will be rectified. In one of the large factories a false alarm of fire was raised, and, as the door leading into the staircase opened directly opposite the balustrade around a central well-hole, the employés were crowded together at this point, and about twenty or more were trampled to death or hurled over the balustrade down the well-hole.



Plan of a Philadelphia Tenement Factory

Fig. 23. B., Balcony; P.G.L., Passenger or Goods Lift.

The doors giving access to all such stairs should be planned so as to open opposite the downward flight, and so as not to interfere with the passage of persons down the staircase.

In many buildings, such as hotels and stores, the existence of exits, staircases, fire-escape, etc. is prominently announced by placards and illuminated signs. In all buildings in which persons are employed, or to which the public have access, it seems absolutely essential that specific directions should be given as to the lines of escape. The risk of panic is increased by ignorance of the direction and position of the means of escape.

I submit the following conclusions:—

1. American opinion demands that adequate fire-protection for life should be provided in all buildings, irrespective of size and occupation. If a building be structurally unsafe for occupation, it is pulled down; if it be insanitary and the defects are not made good, it is declared unfit for habitation; and if it be used for illegal purposes, it becomes a public nuisance and is closed up. The question in these cases is not as to the number of persons who may be injured if the building should fall or may be affected by its condition. I recommend that the fire-risk to life should be considered upon somewhat similar lines. The law should not permit a person to expose himself or those within his premises to a preventable risk from fire. Further, in every respect fire is a public danger, whereas a ruinous or insanitary building may only affect the welfare of private individuals. As is well known, fines are sometimes inflicted for permitting a flue or chimney to become ignited. This, to a large extent, affects the occupants of the poor and ill-constructed dwellings only. The occupants of extensive premises, who, by indifference to fire risks and by reckless proceedings, may originate a huge conflagration, should not be unrestrained by the authorities, especially when, in addition to the destruction of property, lives are jeopardized.

2. All important American buildings are constructed of fire-resisting materials, and the majority of ordinary buildings are by law compelled to be constructed in a similar manner. It is frequently contended that in England financial considerations debar this form of construction, and that were it compulsory rents would be prohibitive, and that property would be depreciated in value. While, to a large extent, the cost of construction, especially in the case of the poorer type of dwellings, would be increased, the actual increase in practice would not be great. Many simple methods of fire-resisting construction for floors, roofs, etc., are available. They could be adopted with ease and economy were their use compulsory.

3. I recommend that the height of buildings should be limited. The American "skyscraper," although a financial success, is an eye-sore to a city and a menace to public health and safety.

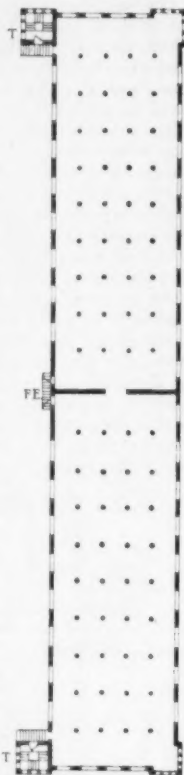
Financial reasons should not have such weight as to enable property-owners to erect their buildings to an unlimited height, nor should the measure of the public fire-brigade service alone reduce the height of buildings to an unprofitable minimum. The height of a building should be regulated primarily upon sanitary lines. The New York State Tenement-house Law limits tenement-houses to a height not exceeding one and a half times the width of the streets on which they front. It is reasonable to suggest that, as many persons pass the larger portion of their lives within the precincts of factory and commercial premises, such premises should be provided with a measure of light and air at least equal to that demanded for tenement-houses.

4. I recommend that buildings should also be restricted in floor-area. It is suggested that 5,000 feet should be the general limit of undivided floors. Increase beyond this should only be permitted where special business requirements absolutely demand it.

There are many establishments, such as drapery houses, which need special attention as regards fire risks. The floors are filled with loose inflammable goods and at certain seasons the premises are packed with customers. A fire-alarm would create a panic, and disaster would probably ensue unless those in the building were at once led into the open air or into another part of the premises unaffected by smoke or flame. It is a question whether any practical staircase could be planned to cope adequately with a sudden rush upon the level of, say, 500 persons.

Inflammable goods should also be guarded by automatic water-sprinklers or similar devices. These appliances will retard a fire if they do not entirely quell it, and in this way they directly protect those persons who through injury or incapacity have been unable to avail themselves of the ordinary exits.

5. I suggest that every precaution should be taken to prevent fires



Plan of a Philadelphia Factory

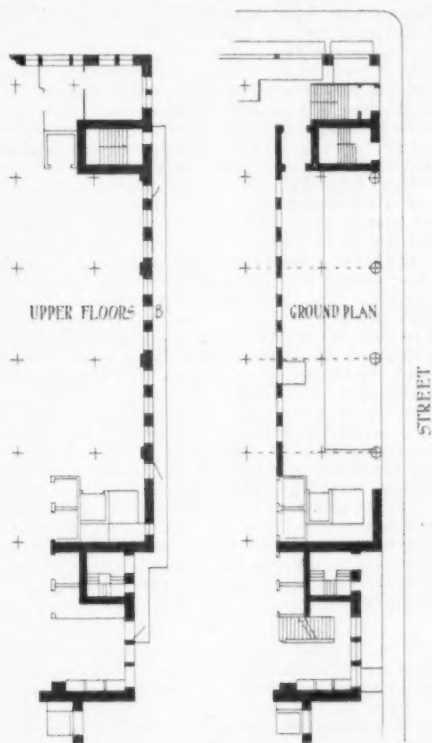
Fig. 24. F.E., Fire-escape; T., Tower Staircases.

spreading beyond the floor in which they originate. Well-holes, lifts, skylights and other "flues" throughout a building should be completely protected. Wire-glass is now a practical commodity, and windows and skylights are not now the same element of risks as hitherto.

Lift-doors should be so arranged that they cannot be left open by carelessness or accident. Stairs should be entirely cut off from the main building, not alone in order to prevent fire and smoke ascending and attacking the upper floors, but mainly in order to secure under every circumstance clear lines of exit.

6. American opinion is in favor of a form of escape in case of fire which leads persons outside the burning building; a division-wall is an admirable contrivance, even though the means of escape on either side are in themselves indifferent. Where this is impossible, staircases are the only practicable form of escape. Ropes, ladders and shoots are dangerously impossible substitutes for staircases. The staircases should be against outside walls, and should be so planned that they may not be attacked by flame or smoke in the event of a fire within the building to which they belong. I suggest that the staircase as adopted in Philadelphia, and indicated in Figures 22, 23, 24 and 25, fulfils all requirements upon this head. They should have straight flights and handrails, and the approaches should be such as to allow rapid and easy exit.

7. Many practical men contend that staircases for the above purposes should not exceed 3 feet 6 inches in width. This width permits



Plans of Escape Stairs at a Philadelphia Dry Goods Store.

Fig. 25. B, External Iron Balconies.

the two lines of persons to descend rapidly, aided by the handrail on either side. A third line of persons in a wider staircase without the aid of a handrail is a danger. Staircases should be provided, so that no person escaping is compelled to travel on any floor-level more than the distance, viz, 100 feet. For practical purposes the number of persons for which a staircase is available as an escape on an emergency is regulated by the number it can contain within its enclosure from top to bottom. Thus, in a story 15 feet high a staircase 3 feet 6 inches in width would accommodate about 100 persons upon the steps and landings. These persons could be employed in a factory upon a floor-space of 2,500 feet. It therefore appears that a building should possess at least one such main-exit staircase for each 2,500 feet of area. In less crowded buildings than factories these figures will of course be modified.

In conclusion, I suggest that fire-protection is a wise and profitable investment for the employer of labor, as well as for the property-owner. For the city it implies a small but efficient fire-brigade, while for the community at large it provides relief from a most terrifying danger.

A TUNNEL UNDER THE SEINE.—The scheme of M. Berlier, an engineer, for tunnelling under the mouth of the Seine, has been adopted. The tunnel, which is designed to give railroad connection between Havre and Pont Audemer, will be 3,000 yards long and will be 17 feet below the river-bed. It will carry a double track. It is estimated that the work will be completed in three years and will cost about \$6,250,000.—*Exchange*.

BOOKS PAPERS

AN intensely practical book, as well as a well-written and comprehensive one, is Mr. Ellis's treatise on joinery; and, although it is written for Englishmen, and describes English methods of work, American architects and mechanics will find it very useful. It is hardly necessary to say that English joinery differs from ours mainly in being far more a matter of handwork, dovetailing, mortising and other operations which are, with us, almost invariably effected by machines, being done in England by the workman on the spot; but it certainly does an American mechanic or superintendent no harm to know how these operations can be effected by hand, if necessary, and, in some cases, the knowledge may be of great value. In fact, even the English variations from American practice are instructive. Mr. Ellis, for example, gives a device, apparently of his own invention, for grooving sashes, and putting tongues, fitting the grooves, on the inside bead and the outer casing of the frame, to act as "draught-checks," which is well worth remembering; and his elucidation of the painful subject of the lower rail of a French casement sash will win him the gratitude of architects. In fact, American readers should be on their guard against supposing, from observing several pages of text, and a considerable number of illustrations, devoted to the art of using moulding-planes, and making sashes by hand, that the book is in the least antiquated. It is true that, in this country, moulding-planes are practically unknown, all mouldings being "stuck" by knives in a machine; that sashes are never made by hand; that the practice of setting a lock opposite a rail of a door has been abandoned here for at least fifty years, on account of the weakening of the tenon of the rail by mortising for the lock; that interior doors of solid mahogany or oak are unsuitable to our furnace-heated houses; and that our window-frames must generally be designed with reference to fly-screens and outside blinds; but, keeping these and other variations between American and English practice in mind, Mr. Ellis's instructions are admirably modern, sensible and clear. Nothing is more valuable to the young architect than a good mental store of suggestions for construction, as well as for design, and multitudes of these will be found in this excellent book. The chapters on staircases and handrailing, particularly, contain many ideas, not very familiar to the profession either here or in England, which the architect-reader is likely to find himself adopting in his next dwelling-house plan, much to the advantage of his client.

ILLUSTRATIONS

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

FRONT ELEVATION: UNITED STATES GOVERNMENT BUILDING, LOUISIANA PURCHASE EXPOSITION, ST. LOUIS, MO. MR. JAMES KNOX TAYLOR, SUPERVISING ARCHITECT, WASHINGTON, D. C.

DETAILS OF CENTRAL PAVILION OF THE SAME.

DINING-ROOM: HOUSE OF BRADFORD NORMAN, ESQ., PORTSMOUTH, R. I. MESSRS. WINSLOW & BIGELOW, ARCHITECTS, BOSTON, MASS.

Additional Illustrations in the International Edition.

FRATERNITY HOUSE: UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA, PA. MESSRS. G. W. & W. D. HEWITT, ARCHITECTS, PHILADELPHIA, PA.

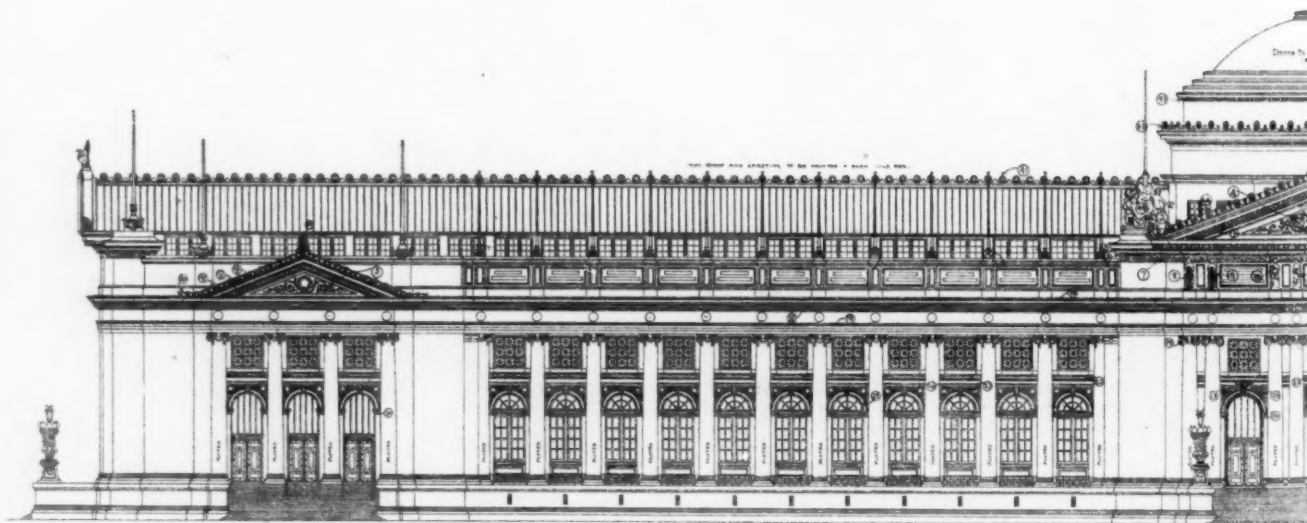
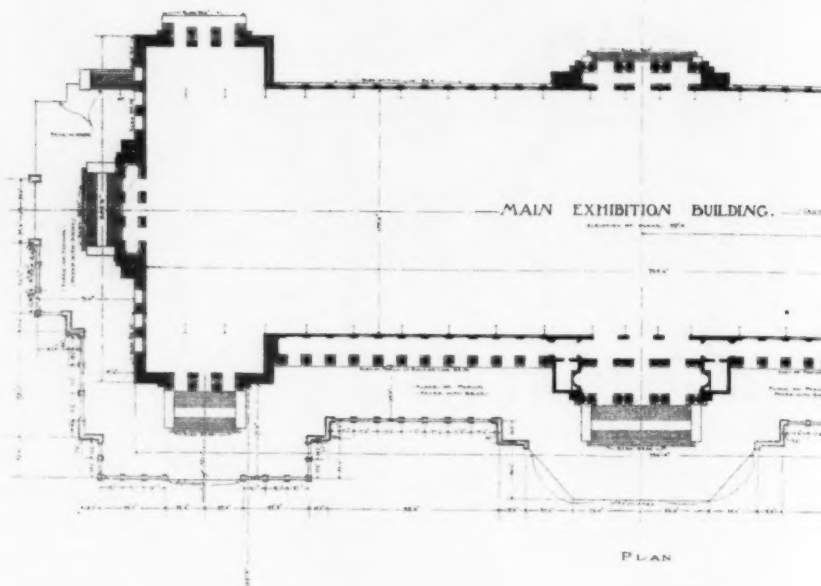
ENTRANCE HALL: HOUSE OF BRADFORD NORMAN, ESQ., PORTSMOUTH, R. I. MESSRS. WINSLOW & BIGELOW, ARCHITECTS, BOSTON, MASS.

ENTRANCE HALL: NEW YORK LIFE INSURANCE BUILDING, NEW YORK, N. Y. MESSRS. MCKIM, MEAD & WHITE, ARCHITECTS, NEW YORK, N. Y.

GENERAL OFFICE IN THE SAME BUILDING.

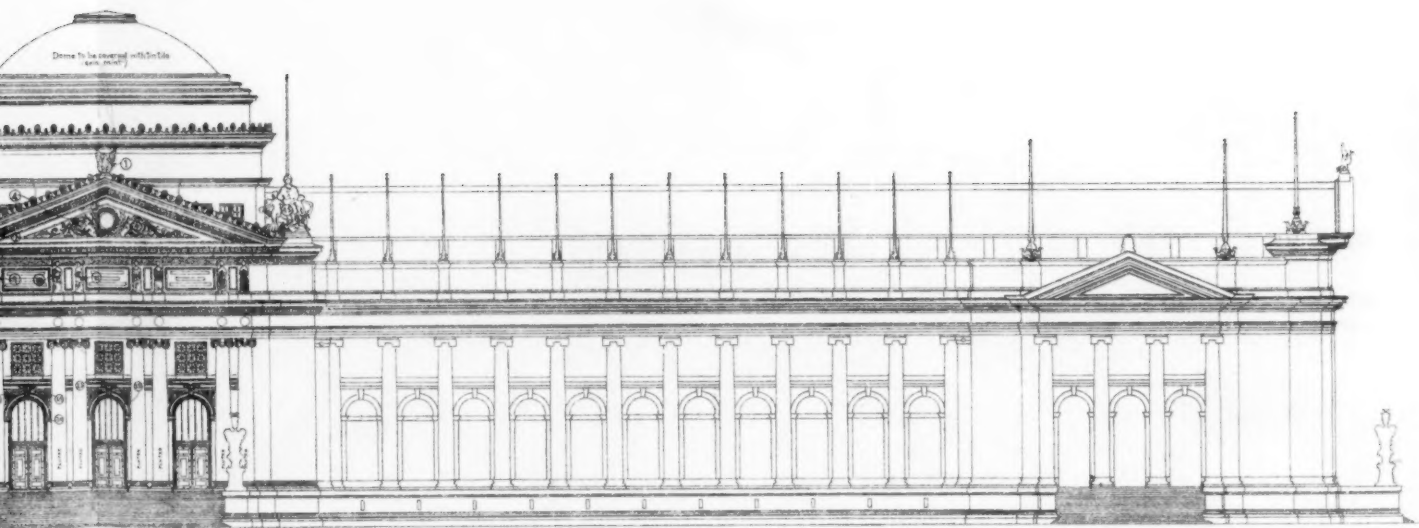
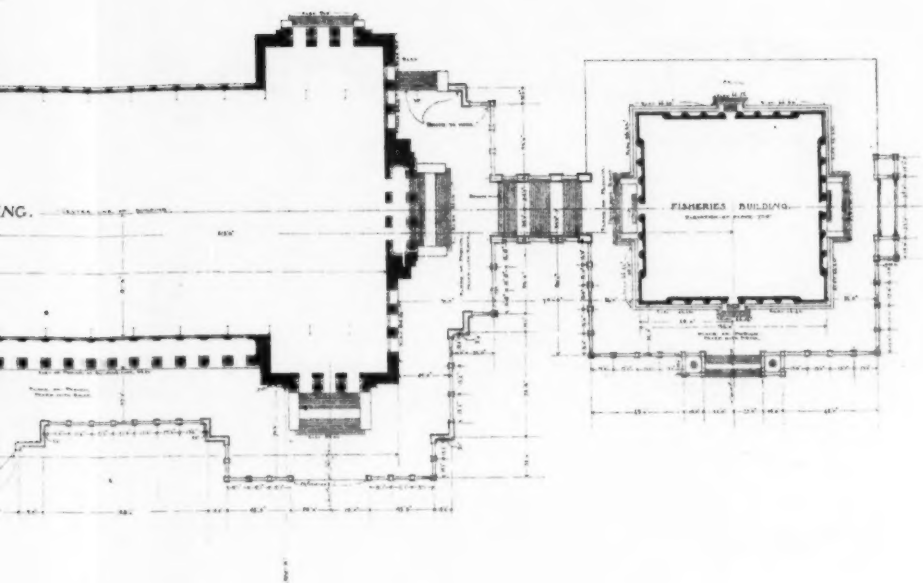
PICKLED STATUES.—The marbles in Westminster Palace, London, are treated to a bath once a year. They are first sponged off with water and then "pickled." The pickle consists of a solution of soft-soap and sulphur, which removes the incrustations due to the smoke-laden atmosphere, and is said to do the marble no harm. There are twenty-nine marble statues in the Palace.—*N. Y. Times*.

"Modern Practical Joinery." A Treatise on the Practice of Joiner's Work by Hand and Machine; for the Use of Apprentices, Workmen and Builders. By George Ellis. With about One Thousand Illustrations. Imported by Charles Scribner's Sons. New York. Price \$5.00 net.

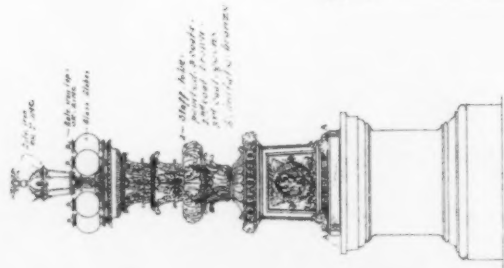


COPYRIGHT 1902 BY THE AMERICAN ARCHITECT AND BUILDING NEWS CO.

U. S. GOVERNMENT BUILDING, LOUISIANA
JAMES KNOX TAYLOR, ARCHT.

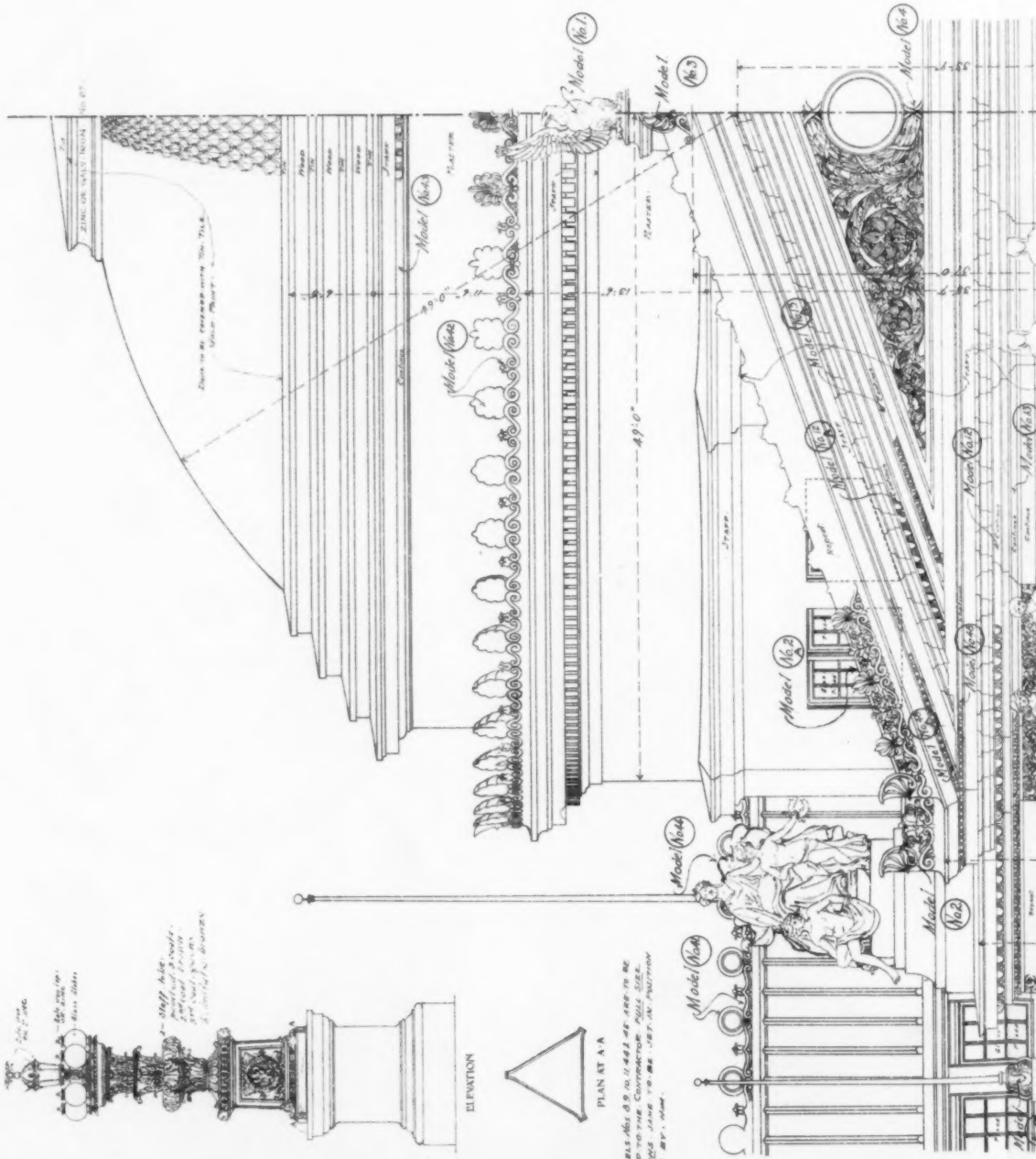


FRONT ELEVATION



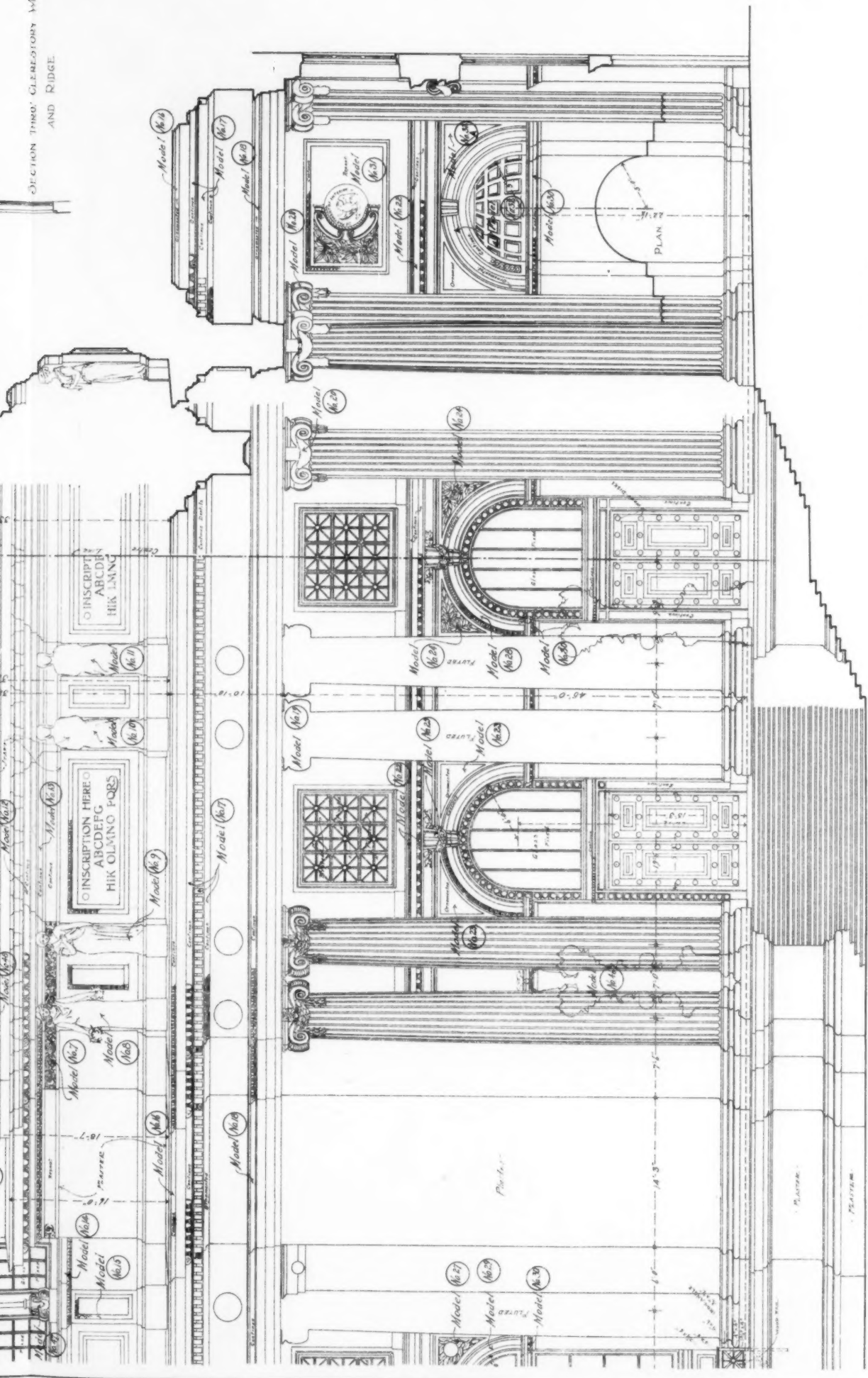
PLAN AT A

Notes: Models No. 18 to 20 are to be furnished to the Contractor full size. If selected, same to be set in position promptly by him.



CROSS SECTION THROUGH GLASS AND RIDGE

SECTION THRU GLAZED WINDOW
AND RIDGE



SECTION.

ELEVATION.

OPTIONAL. THIS FOR THE AMERICAN ARCHITECT AND BUILDING NEWS.

DETAILS OF CENTRAL PAVILION: U. S. GOVERNMENT BUILDING, LOUISIANA PURCHASE EXPOSITION, ST. LOUIS, MO.
JAMES KNOX TAYLOR, SUPERVISING ARCHITECT.

The American Architect
Jan. 31, 1903.
No. 1414.



INTERIOR VIEW BY THE AMERICAN ARCHITECT AND BUILDING PRESS CO.

DINING-ROOM: HOUSE OF BRADFORD NORRIS
WINSLOW & BIGELOW, ARCHT.



FORD NORMAN ESQ., PORTSMOUTH, R. I.
BIGELOW, ARCHITECTS.

The American Architect
Jan. 31, 1903.
No. 1414.

THE AMERICAN ARCHITECT AND BUILDING NEWS

A WEEKLY JOURNAL OF CONSTRUCTIVE AND DECORATIVE ART

VOL. LXXIX.—No. 1414.]

SATURDAY, JANUARY 31, 1903.

PRICE, (INTERNATIONAL ISSUE, 50 CTS
(REGULAR " 15 "

WHITTIER MACHINE CO.,

PASSENGER AND FREIGHT
ELEVATORS.

53 STATE STREET - - - BOSTON.

ELEVATOR SIGNALS

OF ALL KINDS

HERZOG TELESEME CO.

51 WEST 24TH ST., NEW YORK



ARCHITECTURAL INSTRUCTION.

BOSTON, MASS.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY.

DEPARTMENT OF ARCHITECTURE.

Options in *Architectural Engineering* and *Landscape Architecture*.
College graduates and draughtsmen admitted as special students.

SUMMER COURSES in *Elementary Design* and *Shades and Shadows*. Proficiency in these subjects will enable draughtsmen and students from other colleges to enter third year work.

For catalogues and information apply to

H. W. TYLER, Secretary,

Mass. Institute of Technology, Boston, Mass.

CAMBRIDGE, MASS.

HARVARD UNIVERSITY.

THE LAWRENCE SCIENTIFIC SCHOOL offers professional courses in *Engineering*, *Mining* and *Metallurgy*, *Architecture*, *Landscape Architecture*, etc. Students admitted by examination and by transfer from other Schools or Colleges. Approved Special Students admitted without examinations. New and enlarged equipment. For Catalogue apply to the Secretary, J. L. LOVE, 16 University Hall, Cambridge, Mass. N. S. SHALER, Dean.

LOOMIS FILTERS.

ESTABLISHED 1880.

Improved System. Simple and Effective.

LOOMIS-MANNING FILTER CO.,

Main Office: 402 CHESTNUT ST., PHILADELPHIA.
Boston. New York. Baltimore. Washington.

ITHACA, N. Y.

CORNELL UNIVERSITY

COLLEGE OF ARCHITECTURE

Offers a four-year course in *Architecture* leading to the degree of B. Arch.; also a two-year special course with certificate.

NEW YORK, N. Y.

COLUMBIA UNIVERSITY, IN THE CITY OF NEW YORK.

SCHOOL OF MINES.
SCHOOL OF CHEMISTRY.
SCHOOL OF ENGINEERING.
SCHOOL OF ARCHITECTURE.
SCHOOL OF PURE SCIENCE.

Four years' undergraduate courses and special facilities for graduate work in all departments. Circulars forwarded on application to the Secretary of the University.

ST. LOUIS, MO.

WASHINGTON UNIVERSITY SCHOOL OF ENGINEERING AND ARCHITECTURE

Offers a four-year course in *Architecture*, leading to a degree of B. S. in *Architecture*.
College Graduates admitted to advanced standing or as special students.

FREDERICK M. MANN, Professor.

COLUMBUS, OHIO.

OHIO STATE UNIVERSITY COLLEGE OF ENGINEERING

Offers four-year courses in *Architecture*, *Civil*, *Electrical*, *Mechanical* and *Mining Engineering*, and in *Ceramics*. Tuition free. For information address,
President W. O. THOMPSON, Columbus, Ohio.

PHILADELPHIA, PA.

UNIVERSITY OF PENNSYLVANIA. SCHOOL OF ARCHITECTURE.

PROF. WARREN P. LAIRD.

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.

FLYNT

BUILDING AND CONSTRUCTION CO.

GENERAL OFFICE, PALMER, MASS.

We contract to perform all labor and furnish all material of the different classes required to build complete

CHURCHES, HOTELS, MILLS, PUBLIC
BUILDINGS AND RESIDENCES.

Also for the construction of
RAILROADS, DAMS AND BRIDGES.

We solicit correspondence with those wishing to place the construction of any proposed new work under ONE CONTRACT, which shall include all branches connected with the work. To such parties we will furnish satisfactory references from those for whom we have performed similar work.

The WINSLOW BROS. COMPANY,

CHICAGO,

Ornamental Iron and Bronze.

"THE AMERICAN VIGNOLA"

PART I

THE FIVE ORDERS OF ARCHITECTURE

BY

WILLIAM R. WARE

Professor of Architecture, Columbia University
Text and Plates, 86 pp., 9"x12" Price, \$3.00
AMERICAN ARCHITECT AND BUILDING NEWS CO.
PUBLISHERS

BOOKS:

"Croquis d'Architecture."

(Intime Club.)

XXII Year, complete. Price \$0.70.

A hiatus of ten years occurs between the date of the
21st and 22nd volumes.

AMERICAN ARCHITECT AND BUILDING NEWS CO.

BOOKS:

"Les Concours publics d'Architecture."

(A Monthly Publication.)

Edited by MM. Wulliam and Farge.

Vol. IV. 120 Plates. Price \$9.40.

AMERICAN ARCHITECT AND BUILDING NEWS CO.

BOOKS:

"The Library of Congress."

20 Plates, folio. Price \$5.00.

AMERICAN ARCHITECT AND BUILDING NEWS CO.

ROBERT C. FISHER & CO.

Successors to Fisher & Bird,

MARBLE AND GRANITE WORKS

97, 99, 101 and 103 EAST HOUSTON STREET,

Established 1830.

NEW YORK.

When You Build a Skyscraper



Don't risk its early destruction by using cheap paint on its steel skeleton. There is one material that will perfectly protect metal from rust—

Durable Metal Coating

Specify it and be safe.

EDWARD SMITH & COMPANY
Varnish Makers and Color Grinders
45 Broadway, New York

59 Market St., Chicago

Ball Bearing Hinges

In Wrought Bronze
and Steel



ALL FINISHES

Our new Catalog can be had for the asking.

The Stanley Works, Dept. C
NEW BRITAIN, CONN.
79 Chambers Street, NEW YORK.

CLINTON WIRE-CLOTH CO.

Sole Proprietors and Manufacturers of

WIRE LATH

DOUBLE TWIST WARP
STIFFENED (Iron Furred)
CLINTON CORRUGAT'D

Plain, Japanned or Galvanized.

The Most Perfect and Economic System of FIREPROOF Construction.

SEND FOR CIRCULAR.

BOSTON,
199 Washington St.

NEW YORK,
76 Beckman St.

CHICAGO,
137 Lake St.

FACTORY,
CLINTON, MASS.

FOR INFORMATION ABOUT

U. S. MAIL CHUTES

WHICH ARE

A necessity in Office Buildings and Hotels,
write to the sole makers.

THE CUTLER MFG. CO., ROCHESTER, N. Y.
PATENTED. AUTHORIZED.

"La Construction Moderne,"

A journal of whose merits our readers have had opportunity to judge because of our frequent reference to it and our occasional republication of designs that are published in it, is the most complete and most interesting of the French architectural journals.

The seventeenth annual volume is now in course of publication.

Subscription, including postage, 35 francs.

Each weekly issue contains, besides the illustrations included in the text, two full-page plates, which by themselves are worth double the amount of the annual subscription.

PRICE OF BACK ANNUAL VOLUMES,
:: 40 Francs. ::

Address for subscriptions and catalogues,
LIBRAIRIE DE LA CONSTRUCTION MODERNE,
13 Rue Bonaparte, Paris, France.

Established nearly 40 Years

.. THE ..

ARCHITECT

AND

Contract Reporter

Published Every Friday by P. A. Gilbert Wood

6 TO 11 IMPERIAL BUILDINGS
LUDGATE CIRCUS. LONDON, E. C.

PRICE, FOURPENCE

The "ARCHITECT AND CONTRACT REPORTER" has been established nearly 40 years; has a large and influential circulation; has been proved to be the best medium for advertising to Architects, Builders and Contractors; has the finest illustrations, and has been specially noted for its Art reproductions.

Send us six English 1d. stamps and we will mail you sample copy.

Send us post-office money order for 50 cents and we will send you the last six weeks' issues.

On receipt of \$6.35 we will forward for 12 months.

The YANTACAW Chemical Fire Extinguisher

NO Acid used, nor poisonous gas generated
Danger from explosion
Danger from Chemical or stream to person or fabric
Periodical recharging, testing or polishing.

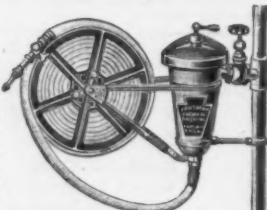
Always in the accustomed place and ready for instant use.
No mechanism to become defective.
Can be recharged in from twelve to twenty seconds.
Much more powerful and efficient than carbonic acid gas machines.

Made in sizes capable of charging 25, 50 and 100 gallons of water without recharging.

With the twin Yantacaw a continuous charged stream can be obtained.

Send for descriptive booklet.

Yantacaw Mfg. Co., 802 Land Title Bldg., Phila.



Sizes 25 gals., 14 in. in height
Sizes 100 gals., 26 in. in height

TAYLOR "OLD STYLE" Roofing Tin

has stood fifty years' wear on the roof.
It is the most durable tin made.

N. & G. TAYLOR CO.

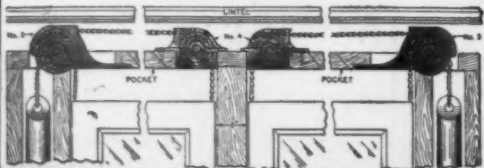
SOLE MANUFACTURERS

PHILADELPHIA ESTABLISHED 1810

Grant Overhead Window Pulley

McQueen's Patents

Specified by the leading Architects of United States and Canada

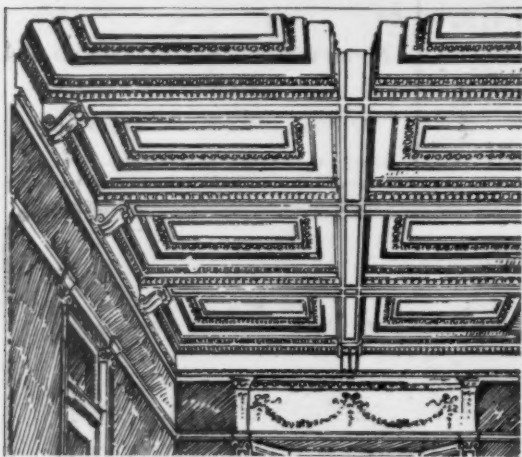


Grant Roller Bearing Pulley

GRANT PULLEY & HARDWARE CO.

23½ Warren St. NEW YORK

Send for
Catalogue



The Kinnear Stamped Steel Ceiling, Sidewall

etc., has held its place in the front for years. It has no equal in construction or design.

Catalogue and prices furnished upon request.

The Kinnear & Gager Co.
Manufacturers
(New Plant) 236 Mt. Vernon Ave.
Columbus, Ohio
Eastern Warehouse and Office
No. 125 Broad St., Boston

Published Saturday, November 15

"The American Vignola"

Part I

The Five Orders of Architecture

BY

WILLIAM R. WARE

Professor of Architecture, Columbia University

TEXT AND PLATE, 86 pp., 9"x12"

PRICE, \$3.00

American Architect and Building News Co.
PUBLISHERS

ALL WISDOM DOES NOT STILL LINGER IN THE WOMB OF TIME

*Some of it has got into the back issues
of the*

American Architect

Among other bits of wisdom, useful to draughtsmen and students,
are these serials:—

"Advice to Architectural Students." Eleven papers, beginning with
No. 39.

"Architectural Shades and Shadows." Eighteen papers, illustrated,
beginning with No. 687.

"Architectural Education in the United States." Four papers,
beginning with No. 658.

"The American Vignola" (Unfinished). Six papers, illustrated, begin-
ning with No. 1339.

"Building Superintendence." Thirty-one papers, illustrated, begin-
ning with No. 262.

"Statics of Structures." Twelve papers, illustrated, beginning with
No. 1093.

"Hints for Builders." Five papers, beginning with No. 588.

"Safe Building." Fifty-two papers, illustrated, beginning with No. 532.

Most of the issues of the AMERICAN ARCHITECT containing the serials
enumerated in the list above are still in print and can be supplied
by us.

It is to be noted, too, that the further contents of the several issues
named above are not without value to the purchaser.

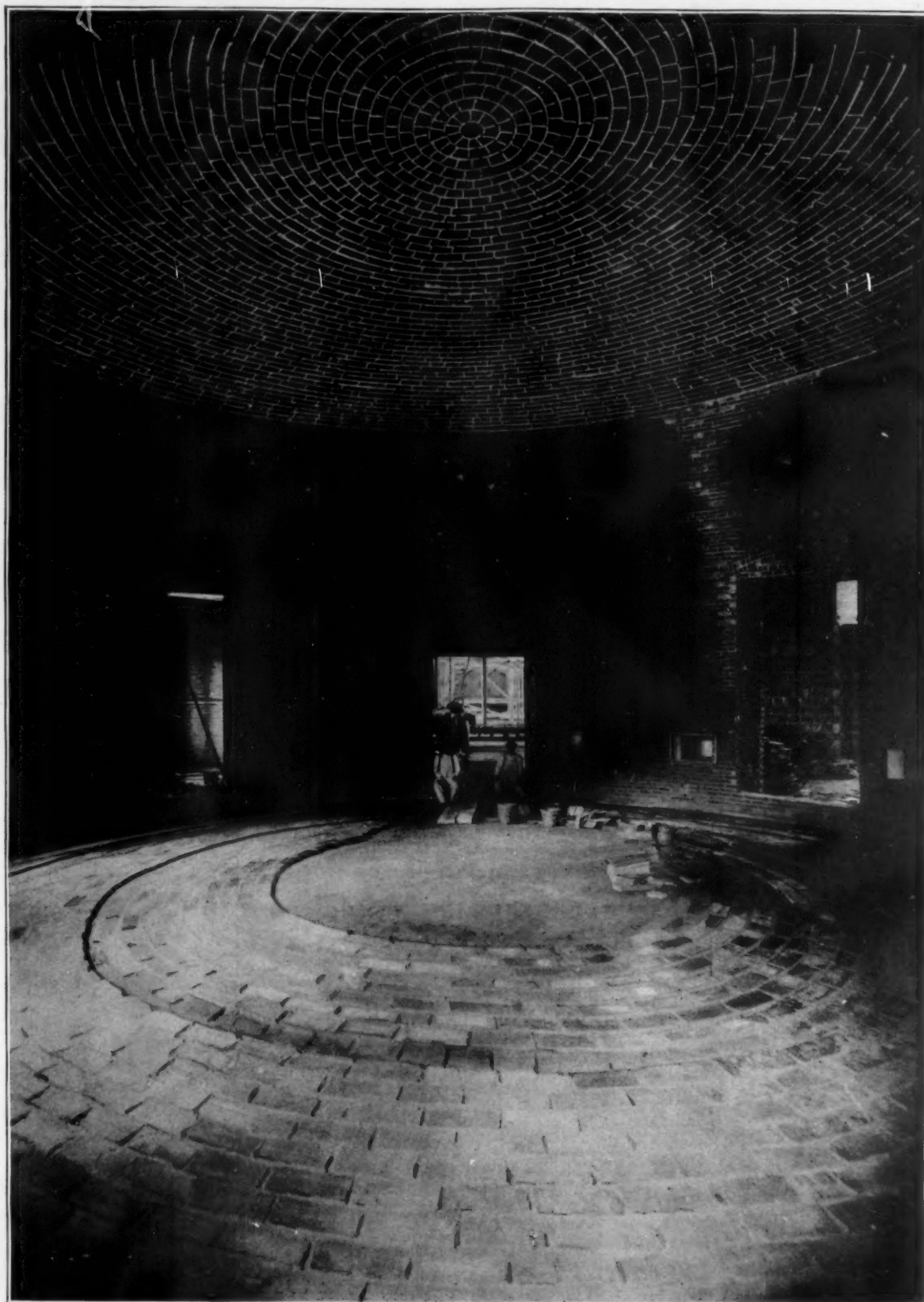
AMERICAN ARCHITECT AND BUILDING NEWS CO.

211 TREMONT ST., BOSTON

NEW YORK:
11 East 59th Street

R. GUASTAVINO CO.
Fireproof Construction

BOSTON:
19 Milk Street



YALE MEMORIAL BUILDING



DOME SUPPORTING FLOOR OVER VESTIBULE

Photograph and Section of Two Floors of the Memorial Vestibule of Bi-Centennial Building,
Yale University, New Haven, Conn.

CARRÈRE & HASTINGS, Architects.

[From the *Review of Reviews* for January, 1903.]

"The most interesting
"of all American publica-
"tions in the field of arch-
"itecture,—namely, the
"series of portfolios
"brought out by the
"*American Architect*
"*and Building News* of
"Boston under the title
"**"The Georgian Period."**

STANDARD FOR RUBBER INSULATION.



TRADE MARK.

WILLARD L. CANDEE, Mgrs. GEO. T. MANSON, Gen'l Supt.
H. DURANT CREEVER, 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

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

 TRADE MARK
Everlastins
RED PAINT
READY MIXED
 Guaranteed the cheapest, most durable and absolutely the best for Buildings, Structures and all work that needs paint.

MEANS & THACHER, 6-8 CUSTOM HOUSE ST., BOSTON
 Sole Manufacturers. Sample and prices on request


1852.

Incorporated

1868

Capital \$60,000.

Levi L. Willoughby, Pres.

Eben 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."


DIXON'S DRAWING PENCILS are perfectly uniform and uniformly perfect; eleven degrees of hardness and softness. Ask for booklet 14.

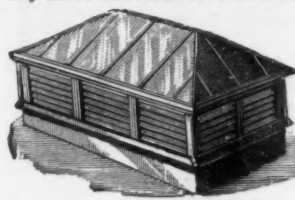
JOSEPH DIXON CRUCIBLE CO., JERSEY CITY, N. J.

The Lovell Window AND Shutter Device

FOR FACTORIES, MILLS, FOUNDRIES, ETC.

THE BEST APPARATUS ON THE MARKET FOR OPENING AND CLOSING MONITOR SASHES.

A LINE OF SASH 500 FEET LONG CAN BE OPERATED FROM ONE STATION IF DESIRED. Adapted to any kind of SASH or WINDOW.



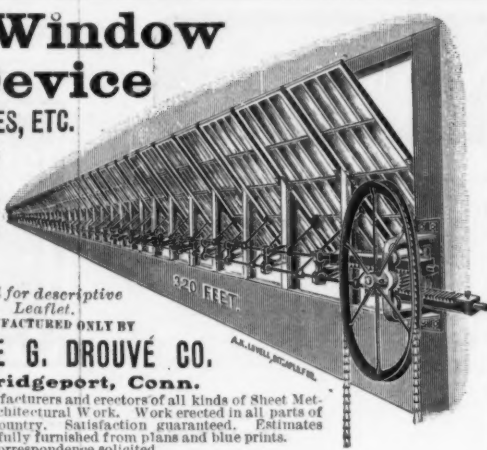
Send for descriptive Leaflet.

MANUFACTURED ONLY BY

THE G. DROUVÉ CO.

Bridgeport, Conn.

Manufacturers and erectors of all kinds of Sheet Metal Architectural Work. Work erected in all parts of the country. Satisfaction guaranteed. Estimates cheerfully furnished from plans and blue prints. Correspondence solicited.

**Artist and Artisan**

is the title of an Artistic Brochure issued by the

Yale and Towne

Mfg. Company,

9-11-13 Murray St., New York City.

It deals with the origin of Ornamental Metal Work and its present development and uses. It will be sent to Architects on request.

#360-19



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.

[Now Ready: The Second Volume of the "Topical Architecture" Library]

"Door and Window Grilles"

104 Plates: 10 in. x 14 1/2 in.

Uniform with the first volume ["Italian Renaissance Doorways"] of this Library

MARCH 22, 1902

The next time you pass along the streets of one of our large cities, note what rapid progress is making in the use of wrought-metal grilles, screens and gates of various kinds for the ornamental protection of doorways and the window-openings of lower stories.

The great interest shown in this particular form of artistic artisanship just now is our reason for devoting the second volume of this Library to door and window grilles.

 price: Bound in Cloth . . . \$7.50
 In Portfolio . . . 6.50

American Architect & Building News Co.
 211 Tremont Street, Boston
**WHEN THE NAME
MERCHANT**

Is stamped on a sheet of roofing tin it means the very best of everything is there—

IN THE PLATE

—not in the advertisement.

MERCHANT & CO., Inc.

PHILADELPHIA

New York

Brooklyn

Baltimore

Chicago

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.

JENKINS IMPROVED AUTOMATIC AIR VALVES

Suitable for high or low pressure. Take no more room than an ordinary air cock. Endorsed by the leading steam experts as the best made and the quickest working. All genuine stamped with our Trade Mark.

JENKINS BROTHERS, New York, Boston, Chicago, Philadelphia

Send for
Samples

**SAMSON SPOT CORD**

is our Extra Quality SASH CORD

The colored spot is our trademark

Samson Cordage Works, Boston, Mass.

WARREN'S TRINIDAD ASPHALT

ROOFING

"ANCHOR BRAND"

PAVING

THE BEST MATERIAL FOR

WARREN CHEMICAL & MFG. CO., 170 Broadway, N. Y.

CRANE VALVES

ESTABLISHED 1855

ELECTRIC HOUSE SERVICE PUMPS

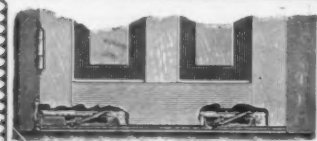
WILLIAM E. QUIMBY

[Incorporated]

141 Broadway, New York

CHICAGO
EDWARD YEOMANS
1141 MONADNOCK BLDG.

NEW ORLEANS
SAFETY ELECTRIC MFG. CO.
303 MAGAZINE ST.

**The Door Strip Problem Solved**

The Introstile, "the perfect strip," gives satisfaction in every case. No more worn thresholds. The Introstile clears rugs and carpets, and is out of sight when door is open. Write for illustrated booklet.

The Introstile & Novelty Co.
Marietta, Ohio.

Are you interested in better and safer methods for filing drawings? We have just issued a work that will interest you—"Safe Filing of Plans"—a 72-page catalogue illustrating a complete system for the filing of every kind of plan or map. The system is the outgrowth of a large experience in the building of steel-plan cases and we believe the first of the kind ever offered.

Designate catalogue by number—533.

ART METAL CONSTRUCTION CO.

Jamestown, N. Y.

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,

206 BROADWAY - - - NEW YORK.

METAL CEILINGS
SIDE WALLS
AND
WAINSCOTING.
TELEPHONE - 46 18th ST.
NEW YORK METAL CEILING CO.
537-539-541 WEST 24th ST. N.Y.

Boston Office: 48 Congress St., Room 24.

"CONSERVO"

WOOD PRESERVATIVE

For Posts, Sills, Stable Floors and all Woodwork that is exposed to decay

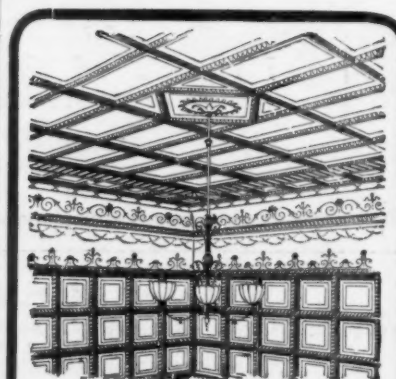
SAMUEL CABOT, Sole Manufacturer, BOSTON

(CIRE-PERDUE PROCESS)
BRONZE TABLETS
WOODLAND BRONZE WORKS
GEORGE P. TILTON
NEWBURYPORT MASSACHUSETTS
ARCHITECTURAL
ECCLESIASTICAL
AND STATUARY
DESIGNING, MODEL-
ING, CASTING,
EITHER OR ALL

Conservatories, Greenhouses, Vineries, Etc.

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

LORD & BURNHAM CO.,
1133 Broadway - - - New York City.

**BERGER'S METAL CEILINGS**

Are symmetrical and pleasing to the eye and command the admiration of all. They can be used in all classes of buildings, are easy to apply, and highly ornamental. They don't shrink, crack, get water-soaked, or fall off. They are safe and sanitary. Their durability makes them the most economical ceilings in existence. Our "Classified Designs" embrace a variety of styles, and there is no building that we cannot match in its style of architecture. Send for our booklet "A New Idea in Metal Ceilings," it is free.

The Berger Manufacturing Co.
CANTON, OHIO

New York Office: 210 E. 23d St., New York, N. Y.
New England Branch: 176 Federal St., Boston, Mass.



INTERLOCKING RUBBER TILING

As laid by us in the main office of Western Electric Building, Chicago. Noiseless, non-slippery, sanitary, extraordinarily durable. Laid directly over any floor, in old or new buildings. For all parts of business and public buildings, churches, hospitals and libraries. For kitchens, laundries, billiard-rooms, bath-rooms, piazzas, halls, etc., of private residences.

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.

Smith's Shutterless Automatic Closing Fire-Proof Metal ... WINDOWS ...



Our sliding sashes can be made to pivot to permit cleaning from inside of building if desired.

Are the BEST FIRE-PROOF WINDOWS of ANY KIND in the world to-day. They are absolutely FIRE and WEATHER PROOF. They SAVE INSURANCE, REQUIRE NO SHUTTERS, INCREASE and better DIFFUSE LIGHT, cannot be distinguished from the best woodwork, are the ONLY sliding sashes that

CLOSE AND LOCK AUTOMATICALLY

when subjected to a mild degree of heat, and are made in FOURTEEN DIFFERENT STYLES for OFFICE, HOTEL and APARTMENT buildings, FACTORIES, WAREHOUSES, Etc.

WE OPERATE NINE LARGE FACTORIES

Write for Catalogue and information to

SMITH-WARREN CO.

93 Federal St., BOSTON, MASS.

PERSPECTIVES RENDERED

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

MASON SAFETY TREAD

The All-Metal Stair Protection

Adopted for New York Subway

AMERICAN MASON SAFETY TREAD CO., BOSTON

J. W. TAYLOR'S PHOTOGRAPH SERIES

OF AMERICAN ARCHITECTURE

324 Dearborn Street, CHICAGO, ILL.

Send two 5 cent stamps for Catalogue.

E. ELDON DEANE,

Architectural Colorist and Draughtsman.
63 Seymour Building, Fifth Ave., cor. 42d St.
NEW YORK CITY.

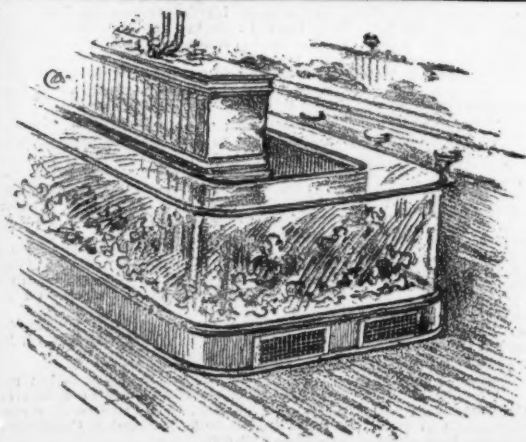
Masonry in Modern Work

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.



STORE HEATING AND VENTILATION

is only beginning to receive the attention it deserves. The really progressive merchant already sees the advertising value of a comfortable store and recognizes the mission of pure air as a means of increasing the efficiency of his employees. We employ the fan system, forcing the air under pressure to the desired points and insuring positive ventilation. The heating surface is localized, extended piping systems are avoided and the temperature automatically controlled.

B. F. STURTEVANT CO.
BOSTON, MASS.
NEW YORK • PHILADELPHIA • CHICAGO • LONDON

CALIFORNIA REDWOOD LUMBER

.. MAKES THE BEST ..

SHINGLES

We are Eastern Headquarters

CLAPBOARDS

Get Our Prices

— SALES — FINISH

— SALES —

1898

MOULDINGS

1902

300,000

FLOORING

3,698,000

Best Clear Quality

PATTERNS

Less Price than

SASH AND DOORS

Fifth Grade of White Pine

COLUMNS

BARTLETT LUMBER COMPANY
ROOM 409, EXCHANGE BLDG., STATE ST., BOSTON, MASS.

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

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Forestville, Conn.—The Bristol Motor Car Co., of Bristol, has purchased from the Sessions Clock Co. the site of the former movement shop, which was burned. The Bristol Co. will erect a fine factory building on the land.

Granite City, Mo.—Work will soon be commenced on the new hospital for this city. Mr. Harry L. Niedringhaus has donated a lot on Madison Ave. to the hospital association. The building will cost not less than \$20,000, and will be provided with all modern improvements and appliances.

Hebron, Me.—The Maine State Sanatorium Association wants \$75,000 for the erection of a sanatorium in this town and a resolve appropriating that amount was presented to the House on January 22d.

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Indianapolis, Ind.—The high-school building in Irvington, which was recently destroyed by fire at a loss of about \$25,000 will be rebuilt at once. John E. Cleland, business director of school board.

Jackson, Miss.—It is reported that the Jackson College has purchased property on which to erect college buildings.

Jamaica Plain, Mass.—Sixteen contractors have submitted bids for building a grammar school-h use on Heath St., in the Lowell district. The highest bidder was T. J. Lyons, who offered to do the work for \$261,000, and the lowest bidder, Mack & Moore, at \$187,000.

Kimmewick, Mo.—It is reported that a sale has been made of a large tract of land between the right of way of the new line of the Frisco railroad,

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

now in course of construction, and the Meramec River, in Jefferson County. The property involved is the old Ten Broeck farm, lying about four miles northwest of this place. It is reported that the purchaser is the Frisco railroad company, and that the property will be used for the site of large shops and a new town.

Los Angeles, Cal.—The Occidental College will erect three new buildings at an approximate cost of \$75,000.

Marblehead, Mass.—Representative Gardner has introduced a resolution for an additional naval academy.

Montreal, Can.—It is reported that Lord Strathcona, Chancellor of the university, has offered to give the last \$20,000 required to construct a gymnasium for McGill University. The undergraduates in the college have raised \$1,000 and a strong effort will be made at once to raise the required amount. The cost will be \$100,000.

New Britain, Conn.—North & Judd Mfg. Co. will erect an additional factory. The structure will be of brick with steel frame, four stories high, 60 by 140 feet.

New Haven, Conn.—The New Haven Rendering Co. will erect in the outskirts of the city a five-story brick building, 50' x 250', with engine and boiler house, for the manufacture of tallow, oleo oil, buttermine, etc.

New London, Conn.—Morton F. Plant is reported to be considering the erection of a residence at Eastern Point. The building will be of granite, 50' x 150', and cost \$250,000.

New Orleans, La.—It is announced by a New York syndicate that a new and modern hotel will be erected here to cost \$2,000,000.

New York, N. Y.—In connection with the plan to erect a Henry Ward Beecher memorial building adjoining Plymouth Church, it has been suggested that the entire half block to the west of the church be purchased, razed of its buildings, and converted

YANKEE VARNISH REMOVER

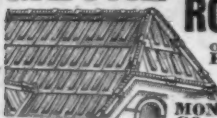
Thoroughly and speedily removes varnish, shellac, wood filler, stain, etc. Woodwork may be refinished immediately without the least danger or injury, if our directions are followed. Used with perfect success for removing the finish on several hundred rooms at Yale College. Sample furnished upon application.

THE BRIDGEPORT WOOD FINISHING CO.

NEW MILFORD, CONN.

55 FULTON ST., NEW YORK; 70 W. LAKE ST., CHICAGO; 231 DOCK ST., PHILADELPHIA

METAL SHINGLE-ROOFING



Best for house or barn. Fire-proof. Easily Laid. Cheaper than slate or wood. Prices, catalogue and testimonials FREE. **MONTESS SHINGLE CO.,** Camden, N. J.



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

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. 31 State Street.

You
Should
Include

Expanded Metal Lockers

in your Plans and Specifications.

For information write

MERRITT & CO.

1011 Ridge Ave., Phila.

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

into a breathing place for the poor along the water front under the name of Beecher Park. It is thought that the property could be secured for about \$100,000, and the idea is receiving serious consideration, although it is entirely apart from the original plans, for which a fund of \$150,000 is now being raised.

Philadelphia, Pa.—Estimates are being filed with Ballinger & Perrot, architects and engineers, 1200 Chestnut St., for Wilde & Co., of this place. Plans provide for a two-story brick building, 60' x 110', mill construction.

Pittsfield, Mass.—The directors of the Stanley Electric Mfg. Co. have voted to increase its capital from \$3,000,000 to \$10,000,000. It is planned to greatly enlarge the company's plant.

Portsmouth, N. H.—At a special meeting of the city council \$11,000 was appropriated to purchase the Haven estate on Islington St. from the Frank Jones estate for a site for a new high-school building. The site adjoins the public library, and the lot contains 42,000 square feet.

Rockland, Mass.—If this town will agree to maintain a free public library, at the cost of not less than \$1,250 a year, and provide a suitable site, Andrew Carnegie will furnish \$12,500 to erect a building.

Roxbury, Mass.—C. J. Carlson has purchased a tract of land at the corner of Centre St. and Lakeville Pl. for \$45,000, on which he will build several high-class apartment-buildings.

Seven brick and stone apartment-buildings with stores beneath, are to be erected at the corner of Columbus Ave. and Weston St.

Rye, N. Y.—John A. Gwynne has sold 40 acres of land lying on the westerly side of Forest Ave. to a client who will erect a handsome house.

Solvay, N. Y.—Andrew Carnegie will give a library to this town.

Washington, D. C.—Secretary Langley of the Smithsonian Institution has transmitted to the House plans for a new building for the United States National Museum, cost not to exceed \$3,000,000.

Williamstown, Mass.—Andrew Carnegie has offered to the town the sum of \$10,000 to found a library on condition that the town agree to raise the sum of 10 per cent of that amount yearly for its maintenance. The probable site of the building is a lot on the corner of Main and Water Sts. belonging to Fred E. Moore.

COMPETITIONS.

SCHOOL.

[At Cleveland, O.]

Plans for the construction of a \$60,000 12 room school-building in this city will be received until February 20 by Edward A. Roberts, clerk board of supervision of public buildings, Chamber of Commerce building.

American Bridge Company

OF NEW YORK

General Offices, 100 BROADWAY, N. Y.



Engineers and
Contractors

Structural
Steel

Of
Every
Description

Buildings
Bridges

EXPANDED METAL

For Fireproofing and Concrete Construction

ASSOCIATED EXPANDED METAL COMPANIES Room 1209, 256 Broadway NEW YORK

PROPOSALS.

SEWERAGE and DRAINAGE

[At League Island, Pa.]
Sealed proposals will be received at the Bureau of Yards and Docks, Navy Department, Washington, until February 7, 1903, for a sewerage and drainage system at the Navy Yard, League Island, Pa. Appropriation, \$11,000. Plans and specifications will be furnished by the Commandant of the navy yard named or can be seen at the Bureau. MORDECAI T. ENDICOTT, chief of bureau. 1414

RIPRAP.

[At Little Rock, Ark.]
U. S. Engineer Office, Little Rock, Ark. Sealed proposals for furnishing large riprap stone for Lock and Dam, Upper White River, Ark., will be received here until February 9, 1903. Information furnished on application. GRAHAM D. FITCH, Capt. Engrs. 1414

SEWERS.

[At Washington, D. C.]
Office of the Commissioners, D. C., Washington, D. C. Sealed proposals will be received at this office until February 14, 1903, for constructing sewers. Forms, specifications and necessary information may be obtained at this office. HENRY B. F. MACFARLAND, HENRY L. WEST, JOHN BIDDLE, commissioners, D. C. 1415

STEEL BUILDING.

[At League Island, Pa.]
Sealed proposals will be received at the Bureau of Yards and Docks, Navy Department, Washington, until February 21, 1903, for constructing a brick and steel building for machine, boiler and blacksmith shops, Navy Yard, League Island, Pa. Appropriation, \$307,650. Plans and specifications can be seen at the Bureau, or will be furnished by the Commandant of the navy yard named upon deposit of \$25 to secure their return. MORDECAI T. ENDICOTT, chief of bureau. 1415

ROADS AND WALKS.

[At Fort Revere, Boston Harbor, Mass.]
Depot Quartermaster's Office, 170 Summer St., Boston, Mass. Sealed proposals will be received at this office until February 21, 1903, for constructing roads and walks at Fort Revere, Nantasket Head, Boston Harbor, Mass. Proposals and information furnished on application. Plans and specifications can be seen at this office. A. M. PALMER, depot quartermaster. 1415

RUBBLESTONE.

[At Isles of Shoals, Me.]
U. S. Engineer Office, Winthrop Building, Boston, Mass. Sealed proposals for delivery of 25,000 tons of rubble-stone in breakwater at Isles of Shoals, Me., will be received here until February 20, 1903. Information furnished on application. HARRY TAYLOR, capt., engr. 1415

CONSTRUCTION, HEATING, PLUMBING, ETC.

[At Fort Ethan Allen, Vt.]
Office, Constructing Q. M., Burlington, Vt. Sealed proposals will be received until February 20, 1903,

PROPOSALS.

for constructing, heating, plumbing, gas-piping, electric wiring of two barracks and one bachelor officer's quarters, constructing and plumbing of two stables and constructing two gun sheds at Fort Ethan Allen, Vt. Information furnished on application. CAPTAIN T. B. LAMOREUX, Q. M. 1415

CHURCH.

[At Willmar, Minn.]
Bids for the erection of a new church for the Lutheran Free Church congregation of Willmar, will be received until February 24. Plans and specifications can be seen at Omeyer & Thor's office, St. Paul, Minn. 1415

RUBBLESTONE.

[At Newburyport, Mass.]
Bids are wanted February 18 for delivering 30,000 tons of rubblestone in jetties at Newburyport Harbor. CAPT. HARRY TAYLOR, Corps Engrs. 1415

CEMENT.

[At Winnipeg, Man.]
Sealed tenders, addressed to the Chairman of the Committee on Works, for the supply of from 15,000 to 20,000 barrels of cement will be received at the office of the undersigned until February 17, 1903. Specifications and forms of tender may be obtained at the office of H. N. Rutan, city engineer, Winnipeg, Manitoba, Can. C. J. BROWN, city clerk. 1415

BRIDGE FLOOR.

[At Bay City, Mich.]
Sealed proposals will be received at the office of the Bay County Bridge Commission, Bay City, Mich., until February 14, 1903, for furnishing the material and reconstructing the floor system of the Lafayette Ave. Bridge. Specifications and information may be obtained from Blomshield & McCloy, consulting engineers, Bay City, Mich. By order of the Commission. Blomshield & McCloy, engineers. 1415

GRADING.

[At Fort Riley, Kan.]
Sealed proposals will be received here until February 16, 1903, for grading. Information furnished on application here; also at offices of Depot Quartermasters, Chicago, Ill.; St. Louis, Mo.; and Omaha, Neb. CAPTAIN G. O. CRESS, Q. M. 1415

DORMITORY.

[At Chillicothe, Okla. Ter.]
Bids are wanted February 19 for furnishing material for constructing a stone dormitory and an addition to a stone dormitory at the Chillicothe school. Address W. A. JONES, Comr. of Indian Affairs, Washington, D. C. 1415

ENGINE PLANT, ETC.

[At Chicago, Ill.]
Bids are wanted February 24 for the engine plant of the Post-office, Court-house, etc., in Chicago; also at the same time for the electrical generators of the said building. Plans and specifications may be obtained upon request, accompanied by a certified

"BENEDICT-NICKEL" Seamless Tubing
for high-class exposed plumbing. "White metal clear through."
BENEDICT & BURNHAM MFG. CO.
Waterbury, Conn.
New York, 253 Broadway
Boston
173 High Street

THE CRAIG Cleanout and Dead-End Stopper
An Improvement in DRAINAGE CLEANOUTS
For Sale by all Jobbers



Manufactured by
DAVID CRAIG, 70 BROAD STREET BOSTON, MASS.

VAN NOORDEN'S Sheet Metal Skylights

You know the name; the name tells the story—Van Noorden's. It means the most light, non-leaking, non-sweating, fireproof and self-ventilating. Great strength with lightness assured. Superior to all other kinds. Catalogue tells the story; full data is yours when you request it.

E. VAN NOORDEN CO.,
944 Massachusetts Ave., Boston.



PROPOSALS.

check of \$100 (each branch), payable to the Treas. of the U. S., or order. Henry Ives Cobb, architect, Chicago Building, Washington, D. C. 1416

Treasury Department, Office of the Supervising Architect, Washington, D. C., January 24, 1903. Sealed proposals will be received at this office until 2 o'clock P. M. on the 9th day of March, 1903, and then opened, for the installation of a conduit and electric wiring system for the U. S. Post-office at Jamestown, N. Y., in accordance with the drawings and specification, copies of which may be obtained at this office, or at the office of the Superintendent of Construction at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1416

Treasury Department, Office of the Supervising Architect, Washington, D. C., January 22, 1903. Sealed proposals will be received at this office until 2 o'clock P. M. on the 2d day of March, 1903, and then opened, for furnishing the low-pressure steam heating apparatus, etc., complete in place for the U. S. Post-office at Jamestown, N. Y., in accordance with the drawings and specification, copies of which may be had at this office, or at the office of the Superintendent at Jamestown, N. Y., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1416

Treasury Department, Office of the Supervising Architect, Washington, D. C., January 15th, 1903. Sealed proposals will be received at this office until 2 o'clock P. M. on the 3d day of March, 1903, and then opened, for the low pressure, steam heating and mechanical ventilating apparatus, etc., for the U. S. Public Building at Helena, Montana, in accordance with the drawings and specification, which will be furnished at the discretion of the Supervising Architect on application at this office, or at the office of the Superintendent of

Telephone Call, 1481 John

HENRY S. NORTHROP, Manufacturer of

Special attention to deep panels, curved work, etc., to architect's designs.

.. Stamped Steel Ceilings

40 Cherry St., New York

Also Room 74, EQUITABLE BUILDING, BOSTON.

Cathedral of St. John the Divine.
New York, N. Y.

WE offer the illustrations of the competitive designs for the great Protestant Episcopal Cathedral, now building on Bloomingdale Heights, New York, submitted by the following Architects:

CARRERE & HASTINGS	New York, N. Y.	CRAM & WENTWORTH	Boston, Mass.
EDWARD P. CASEY	" "	JOHN LYMAN FAXON	" "
HENRY M. CONGDON	" "	PEABODY & STEARNS	" "
ROBERT W. GIBSON	" "	STEPHEN C. EARLE	Worcester, Mass.
B. G. GOODHUE	" "	T. P. CHANDLER, Jr.	Philadelphia, Pa.
HEINS & LAFARGE	" "	COPE & STEWARDSON	" "
HUSS & BUCK	" "	W. S. FRASER	Pittsburgh, Pa.
W. A. POTTER & R. H. ROBERTSON	" "	L. S. BUFFINGTON	Minneapolis, Pa.
RENWICK, ASPINWALL & RUSSELL	" "	VAN BRUNT & HOWE	Kansas City, Mo.
FREDERICK C. WITHERS	" "		
PARFITT BROTHERS	Brooklyn, N. Y.		
W. HALSEY WOOD	Newark, N. J.		

In all, fifty-seven plates [loose], 14 x 20 inches, printed on plate-paper.
Price, \$2.50 per set.

AMERICAN ARCHITECT AND BUILDING NEWS COMPANY,
211 TREMONT STREET, BOSTON, MASS., U. S. A.

PROPOSALS.

the building at Helena, Montana. JAMES KNOX TAYLOR, Supervising Architect. 1414

Treasury Department, Office of the Supervising Architect, Washington, D. C., January 17, 1903. Sealed proposals will be received at this office until 2 o'clock P. M. on the 5th day of March, 1903, and then opened, for the installation of a conduit and electric wiring system for the U. S. Post-office at Janesville, Wisconsin, in accordance with the drawings and specification, copies of which may be obtained at this office or at the office of the Superintendent of Construction at Janesville, Wis., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1414

BUILDING. [At Phoenix, Ariz.]
Department of the Interior, Office of Indian Affairs, Washington, D. C. Sealed proposals addressed to the

PROPOSALS.

Commissioner of Indian Affairs, Washington, D. C., will be received at the Indian Office until February 17, 1903, for furnishing the necessary materials and labor required to construct and complete a frame dairy barn and brick hospital, a brick addition to dining hall and a brick addition to the boys' dormitory, all with plumbing and electric light, at the Phoenix School, Arizona, in strict accordance with plans, specifications and instructions to bidders. For further information apply to Chas. W. Goodman, Supt. Indian School, Phoenix, Ariz. W. A. JONES, Commissioner. 1415

OFFICERS' QUARTERS, ETC. [At Mare Island, Cal.]
Bids will be received at Washington, D. C., until February 30 for building officers' quarters, contagious disease hospital, and for changing main hospital building at Mare Island, Cal., navy yard. A. S. KENNY, paymaster general, U. S. N. 1414

RICHEY BROWNE & DONALD

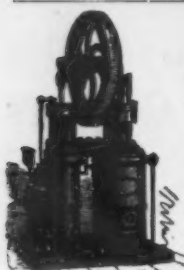
ARCHITECTURAL IRON
BRASS AND BRONZE

Stairs
Elevator Enclosures
Window Work
Bank Counter Railings
Grilles, etc.

Borden and Review Aves.
Long Island City, N. Y.



Lying-in Hospital, N. Y. City, R. H. Robertson, Architect.



HALF ENOUGH WATER

is quite enough for some people, but most people want water every day. If

Rider or Ericsson Hot-Air Pumps

are used you can have water every day in the year, and your cook or stable-boy is the only engineer needed. 25,000 in daily use.

Catalogue "B" on application to nearest store.

RIDER-ERICSSON ENGINE CO.

35 Warren St., New York.

239 Franklin St., Boston.

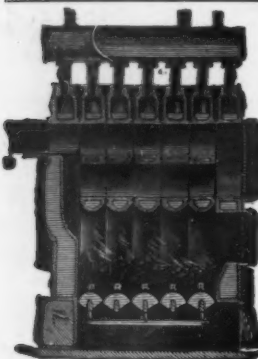
692 Craig St., Montreal, P. Q.

40 Dearborn St., Chicago.

40 N. 7th St., Philadelphia.

Teniente Rey 71, Havana.

23a Pitt St., Sydney, N. S. W.



THE H. B. SMITH CO.

133-135

Centre Street,

New York.

MANUFACTURERS.

Steam and Water

Heating Apparatus,

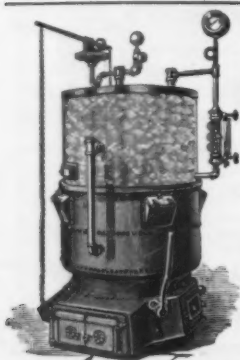
Factory: Westfield, Mass.

ESTABLISHED 1859.

NEW YORK, PROVIDENCE

PHILADELPHIA.

Send for Catalogue.



THE Gorton Side-Feed Boilers

Insure a warm building day and night in coldest weather.

Our Book, MODERN HOUSE HEATING, gives the information. Mailed free.

Send for a copy, and investigate for yourself.

GORTON & LIDGERWOOD COMPANY

96 Liberty Street
NEW YORK

77 Oliver Street
BOSTON

Old Colony Building
CHICAGO

JUST PUBLISHED

LETTERS & LETTERING

A TREATISE WITH TWO HUNDRED EXAMPLES

By FRANK CHOUTEAU BROWN

"LETTERS & LETTERING" is a reference book of alphabets and examples of lettering compiled for the use of architects, draftsmen, and all who have to draw the letter forms. It is the most complete and practically useful treatise on the subject existing. Some special points of superiority are:

- (1) The great number and range of example shown, and the especial space given to the Classic and Renaissance "Roman" letters, and to the work of the most eminent modern designers, American, French, English and German.
- (2) The arrangement of the material for most convenient working use.
- (3) Measured diagrams for drawing the more important basic forms.

PRICE \$2.00 POSTPAID SEND FOR DESCRIPTIVE CIRCULARS

BATES & GUILD COMPANY, 42 CHAUNCEY ST., BOSTON

CODE OF PRACTICE FOR SUB-ESTIMATING AND SUB-CONTRACTING

Adopted by the Master Builders' Association of the City of Boston, Aug. 2, 1894.

ARTICLE I.

Obligation of Principal Contractor to Sub-Contractor.

A principal contractor is under obligation to treat upon an equal basis all estimates which he "receives" prior to putting in his own bid. Estimates must be considered as "received" when they come into a principal contractor's possession, either by his direct solicitation or by being accepted by him. The opening of a bid, knowing it to be such, constitutes receipt of the same.

A principal contractor is under no obligation to use a bid which he has not solicited, accepted, or received, but if he does not wish to use the estimate of a sub-bidder he should decline it, if proffered personally, or should return it unopened if sent to him by mail or otherwise. The retention of a bid should be construed as a receipt of the same.

A principal contractor, when making up his estimate, is not entitled to receive bids from sub-contractors if he is at the same time making himself their competitor by figuring their portion of the contemplated work. It is legitimate for a principal contractor to figure all portions of work, depending upon no one for what are usually known as sub-estimates, but it is not legitimate for him to receive bids from others for sub-work if he is himself figuring those portions independently.

ARTICLE II.

Award of Sub-Contracts.

The principal contractor having been awarded a general contract should immediately award the sub-contracts to the lowest bidder in each branch.

ARTICLE III.

Penalty for not Awarding Contract to Lowest Sub-Bidder.

A principal contractor failing to award a sub-contract to the lowest sub-bidder to whom he is under obligation as previously provided should be liable to pay damages to the said lowest bidder, in amount not less than ten per cent of the amount of the estimate.

Payment of such damages will not relieve the principal contractor from liability to discipline under provisions of Article X of the By-Laws of this Association.

ARTICLE V.

Payments to Sub-Contractors.

Unless the contracts made with sub-contractors otherwise provide, payments during the progress of the work should be made by the principal contractor to the sub-contractors upon the same basis of payment, in relation to amount of work performed, as is prescribed in the contract made by the principal contractor with the owner.

Final payment to a sub-contractor should be considered as due at the expiration of thirty days after the completion of his work and its approval by the architect or owner, unless otherwise provided by the sub-contract or agreement.

ARTICLE VII.

Obligation of Sub-Contractor to Principal Contractor.

Should a sub-contractor refuse to contract at the amount of the estimate he has given to a principal contractor who has used the said estimate in good faith, he then should be liable to the said principal contractor for damages in amount not less than the difference between the amount of the estimate which was submitted by him and the amount at which the principal contractor may be obliged to contract the work.

Payment of such damages will not relieve the sub-contractor from liability to discipline under provisions of Article X of the By-Laws of this Association.

ARTICLE X.

Bids to Architects or Owners.

When bids for separate departments of work on a building are solicited by the architect or the owner, they should be submitted with the understanding that they are direct estimates, for which direct contracts are to be made by the owner with the lowest bidder, and no other disposition of such bids should be permitted without consent of the bidder submitting the same.

Sub-bids should be given only to the principal contractors who are estimating the work in question, and should not be left with architects or owners for the inspection and information of principal contractors. Sub-contractors must understand that bids thus left with architects or owners are in great danger of losing their confidential character, and that if they so leave them they cannot claim protection or redress under the first article of this Code.

SUGGESTIONS.

Members of this Association having sub-contracts to let, or material to buy, should, as far as may be consistent with business principles, deal only with members of the Association, or at all events give their fellow-members an opportunity to compete, and then give them the preference, other things being equal.

All bidders should take cognizance of the danger they may be subjected to through the practice, so prevalent in some architects' offices, of making change in plans or specifications, or in both, during the progress of estimating. Correction of this pernicious practice can only be obtained through refusal by contractors to estimate under such conditions.

A true copy.

Attest:

WM. H. SAYWARD,
Secretary, M. B. A.

MINERAL WOOL

FIRE, SOUND and VERMIN PROOF INSULATOR.

Samples and Circulars Free.

U. S. Mineral Wool Co., 143 Liberty Street,
NEW YORK.

"Italian Renaissance Doorways"

104 PLATES, 10 x 14 1-2 inches

Uniform with the second Volume ["Door and Window Grilles"] of the Topical Architecture Library.

Price, bound in Cloth . . . \$7.50
" in Portfolio . . . 6.50

American Architect and Building News Co., Publishers
211 Tremont Street, Boston

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.

NEW ENGLAND MATERIAL-MEN AND CONTRACTORS.

BLUE PRINTING.

B. L. MAKEPEACE,
345 Washington St., Boston, Mass.
CHAS. E. MOSS,
Rapid Printing Papers,
38 Broad St., Boston.

CHURCH MEMORIAL WINDOWS.

REDDING, BAIRD & CO.,
83 Franklin St., Boston, Mass.

CONTRACTOR & BUILDERS.

WILLIAM L. RUTAN,
1016 Tremont Bldg., Boston.

DOORS, WINDOWS, ETC.

E. A. CARLISLE, POPE & CO.,
2 Sudbury St., Boston, Mass.

FIRE-ESCAPES.

STANDARD FIRE-ESCAPE & MFG.
CO.,
120 Milk St., Boston, Mass.

PLASTERERS.

GALLAGHER & MUNRO CO.,
166 Devonshire St., Boston, Mass.

PORTABLE OVENS.

H. A. JOHNSON & CO.,
224 State St., Boston, Mass.

ROOFING DUCK.

C. H. BATCHELDER & CO.,
234 State St.,
Cor. India St., Boston, Mass.

SASH CORD.

SILVER LAKE CO.,
78 Chauncy St., Boston.

SEAM-FACE GRANITE.

GILBRETH SEAM-FACE GRANITE
CO.,
Park Row Building, New York
85 Water St., Boston.

STABLE FIXTURES.

BROAD GAUGE IRON STALL &
VANE WORKS,
53 Elm St., Boston, Mass.

STONE CARVING AND MOD- ELLING.

HUGH CAIRNS,
48A Sudbury Street, Boston.

TELEPHONES.

S. H. COUCH CO.,
156 Pearl St., Boston, Mass.
(Send for Circular A.)

WATERPROOF CELLARS.

FRANK B. GILBRETH,
Park Row Bldg., New York.
176 Federal St., Boston.

Professional Ethics.

The following . . .

. . . CODE OF ETHICS . . .

Prepared in Conformity with the
Best Standards of Practice, and
Recommended to its Members by
the Boston Society of Architects,
was

ADOPTED BY THE SOCIETY, FEBRUARY 1.
. . 1895. . .

SECTION 1. No Member should enter into
partnership, in any form or degree, with any
builder, contractor, or manufacturer.

SECTION 2. A Member having any ownership
in any building material, device or invention,
proposed to be used on work for which he is
architect, should inform his employer of the
fact of such ownership.

SECTION 3. No Member should be a party to
a building contract except as "owner."

SECTION 4. No Member should guarantee an
estimate or contract by personal bond.

SECTION 5. It is unprofessional to offer draw-
ings or other services "on approval" and
without adequate pecuniary compensation.

SECTION 6. It is unprofessional to advertise in
any other way than by a notice giving name,
address, profession, and office hours, and
special branch (if such) of practice.

SECTION 7. It is unprofessional to make altera-
tions of a building designed by another archi-
tect, within ten years of its completion,
without ascertaining that the owner refuses
to employ the original designer, or, in event
of the property having changed hands, with-
out due notice to the said designer.

SECTION 8. It is unprofessional to attempt
to supplant an architect after definite steps
have been taken toward his employment.

SECTION 9. It is unprofessional for a Member
to criticise in the public prints the professional
conduct or work of another architect except
over his own name or under the authority of
a professional journal.

SECTION 10. It is unprofessional to furnish de-
signs in competition for private work or for
public work, unless for proper compensation,
and unless a competent professional adviser
is employed to draw up the "conditions" and
assist in the award.

SECTION 11. No Member should submit draw-
ings except as an original contributor in any
duly instituted competition, or attempt to
secure any work for which such a competition
remains undecided.

SECTION 12. The American Institute of Archi-
tects' "schedule of charges" represents mini-
mum rates for full, faithful and competent
service. It is the duty of every architect to
charge higher rates whenever the demand for
his services will justify the increase, rather
than to accept work to which he cannot give
proper personal attention.

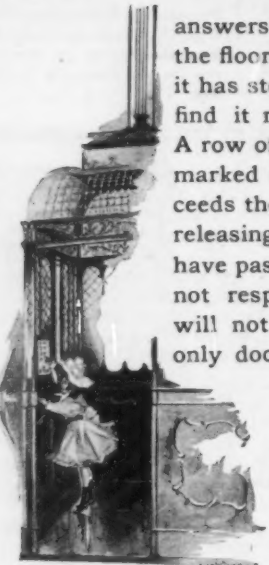
SECTION 13. No Member shall compete in
amount of commission, or offer to work for
less than another, in order to secure the work.

SECTION 14. It is unprofessional to enter into
competition with or to consult with an archi-
tect who has been dishonorably expelled from
the "Institute" or "Society."

SECTION 15. The assumption of the title of
"Architect" should be held to mean that the
bearer has the professional knowledge and
natural ability needed for the proper inven-
tion, illustration and supervision of all building
operations which he may undertake.

SECTION 16. A Member should so conduct his
practice as to forward the cause of profes-
sional education and render all possible help
to juniors, draughtsmen and students.

The Otis Automatic Elevator



answers the pressure of a button by coming to the floor you are on, and stopping itself. Until it has stopped the door is locked, but now you find it released and step in, closing the door. A row of buttons is before you. Press the one marked for the floor you want and the car proceeds there, either up or down, and stops itself, releasing the door for your exit. Until you have passed out and close the door again, it will not respond to any interfering call. The car will not move while any door is open. The only door not locked is the one at which the car is at rest.

Most city homes are so arranged that little difficulty is found in installing the elevator.

Write us about it.

OTIS ELEVATOR COMPANY

Branch Offices
Throughout the Country

71 Broadway, New York

BRONZE

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

**WROUGHT
IRON**



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.
BUTCHER POLISH CO.,
356 Atlantic Ave., Boston, Mass.

Our No. 3 Reviver is a Superior Finish for Kitchen and Piazza Floors.

NATIONAL FIRE-PROOFING CO.

PITTSBURGH
PHILADELPHIA

NEW YORK

BOSTON
CHICAGO

[See Alphabetical Index on Cover 2 for Pagination.]

CLASSIFIED ADVERTISEMENTS.

[Advertisers can be indexed only under a single head free of charge.]

ARCHITECTURAL METALWORK.
Mullins, W. H., Salem, O.
ART METALWORK.
Art Metal Construction Co., Jamestown, N. Y.
Ludlow Saylor Wire Co., St. Louis, Mo.
ARCHITECT'L ORNAMENTATION.
Lombard & Co., A. P., Boston
ASPHALT.
Neuchatel Asphalt Co., New York
ASPHALT ROOFING.
Warren Chemical & Mfg. Co., N. Y.
BLUE PRINTS.
Makepeace, E. L., Boston
Moss, Chas. E., Boston
Spaulding Print Paper Co., Boston
BOILERS (Side-Feed).
Gorton & Lidgerwood Co., New York
BOOKS.
Bates & Guild Co., Boston
BRICKS (Red Oxide).
Wisconsin Graphite Co., Pittsb'g, Pa.
BRONZE TABLETS.
Tilton, George P., Newburyport, Mass.
BRONZEWORX (Ornamental).
Richey, Browne & Donald, Long Island City, N. Y.
Tyler Co., The W. S., Cleveland, O.
Winslow Bros. Co., The, Chicago, Ill.

CAPITALS.
Lombard & Co., A. P., Boston
CAPITALS (Carved).
G. T. Nelson Co., The, Columbus, Ohio
CARVING.
Lombard & Co., A. P., Boston
Waddell Mfg. Co., Grand Rapids, Mich.
CEMENT.
Alsen's Cement Works, N. Y.
Atlas Cement Co., New York
CLEAN-OUT.
Craig, David, Boston
COMPOSITION ORNAMENT.
Lombard & Co., A. P., Boston
CONSERVATORIES.
Lord & Burnham Co., Irvington-on-Hudson, N. Y.
CONTRACTING.
Flynt Building & Construction Co., Palmer, Mass.
Rutan, William L., Boston
CONTRACTOR AND BUILDER.
Rutan, William L., Boston
CORDAGE.
Ramson Cordage Works, Boston
CRANES.
Northern Engineering Works, Detroit, Mich.
CUPOLAS (Foundry).
Northern Engineering Works, Detroit, Mich.

CUTLER PAT. MAILING SYSTEM.
Cutler Mfg. Co., Rochester, N. Y.
DEAPENING QUILT.
Samuel Cabot, Boston, Mass.
DOORS (Steel Rolling).
Kinneer Mfg. Co., The, Columbus, O.
DOORS, WINDOWS, ETC.
Carlisle, Pope & Co., E. A., Boston
DRAUGHTSMAN.
E. Eldon Deane, New York
ELECTRIC SIGNALS.
Elevator Supply & Repair Co., New York
ELEVATORS, ETC.
Morse, Williams & Co., Philadelphia
Otis Elevator Co., New York
Whittier Machine Co., Boston
ELEVATORS (Foundry).
Northern Engineering Works, Detroit, Mich.
ELEVATOR SIGNALS.
Hersog Telesome Co., New York
ENGINES (Hot-Air).
Rider-Ericsson Engine Co., New York
EXPANDED METAL LOCKERS.
Merritt & Co., Philadelphia, Pa.
FAN SYSTEM.
Sturtevant Co., B. F., Boston, Mass.
FILE DEVICES.
Art Metal Construction Co., Jamestown, N. Y.

FILTER.
Loomis-Manning Filter Co., Phila., Pa.
FIRE-ESCAPES.
Standard Fire escape & Mfg. Co., Boston
FIRE EXTINGUISHER.
Yantacaw Mfg. Co., Philadelphia, Pa.
FIREPROOF CONSTRUCTION.
Guastavino Co., R., New York
FIREPROOFING.
Associated Expanded Metal Co., New York
National Fireproofing Co., Pittsburg, Pa.
FIREPROOF LATHING.
Hayes, Geo., New York
FIREPROOF SHUTTERS.
Kinneer Mfg. Co., The, Columbus, O.
FLOOR POLISH.
Rutcher Polish Co., Boston
FOUNDRY EQUIPMENT.
Northern Engineering Works, Detroit, Mich.
GALVANIZED IRON.
American Sheet Steel Co., New York
GATES.
Wm. R. Pitt, New York
GRATES, ETC.
Wm. H. Jackson & Co., New York
GREASE (Graphite).
Wisconsin Graphite Co., Pittsb'g, Pa.

**THE
Northwestern Terra-Cotta Co.**
Manufacturers of
Architectural Terra-Cotta.

WORKS & MAIN OFFICE: Cor. Olybourn & Wrightwood Avenues.
CITY OFFICES: Room 1118 Rookery Bldg. cor. La Salle & Adams St.

CHICAGO.

Estimates given on application. Send for Catalogue and Samples.

**PERTH AMBOY
TERRA-COTTA COMPANY,**

PERTH AMBOY, NEW JERSEY.

OFFICE, 160 Fifth Ave., NEW YORK.

BOSTON AGENTS:

WALDO BROS., 102 MILK STREET.

Published Saturday, November 15

"The American Vignola"

PART I

The Five Orders of Architecture

BY

WILLIAM R. WARE

Professor of Architecture, Columbia University

Text and Plates 86 pp., 9"x12"

PRICE, 3.00

American Architect and Building News Co.

PUBLISHERS