

EDWARD SLOSSON,
Vice President.

WILSON G. CORNELL,
President.

GEORGE W. SIMMONS,
Sec'y & Treas.



W. G.



CORNELL CO.

ENGINEERS AND CONTRACTORS

PLUMBING HEATING LIGHTING

NEW YORK

BOSTON

BALTIMORE

WASHINGTON

THE FOLLOWING PROMINENT CONTRACTS
REPRESENT A BUSINESS OF OVER 1,500,000 DOLLARS

- MUNICIPAL BUILDING
- WOOLWORTH BUILDING
- 80 MAIDEN LANE BUILDING
- BANKERS TRUST BUILDING
- PLAZA COPLEY HOTEL, BOSTON
- NEW POST OFFICE, WASHINGTON

INSANE ASYLUM,

SCHUYLKILL HAVEN, PA.

FIRST NATIONAL BANK,

RICHMOND, VA.

RICE INSTITUTE,

HOUSTON, TEXAS.

Dunham System OF Vacuum Heating

The success of the Vacuum Heating System depends upon the trap used between the Radiator and return pipe. To operate perfectly this trap is obliged to do three things:

1. It must open wide to allow the water of condensation to drain out.
2. It must open wide to allow the air to pass out.
3. It must close tight against steam and allow none to pass into the return pipe.

There are some things this trap must not do.

1. It must not clog up.
2. It must not wear out.

All these items form the GUARANTEE offered by the DUNHAM SYSTEM OF VACUUM HEATING. The DUNHAM RADIATOR TRAP has no slides, contacts, hinges or floats. It has a motive force within itself of 15 pounds. It has a large opening to allow grease and dirt to pass out and is absolutely noiseless in operation.

This trap is being recognized by our leading engineers, because it does operate and perform the work guaranteed.

Some of the important buildings throughout the country where it is installed and being installed are as follows:

- Woolworth Building..... New York.
- Continental Life Bldg... New York.
- U. S. Post Office..... New York.
- Kent Building..... Brooklyn.
- Utica Hotel..... Utica, N. Y.
- Sherman Hotel..... Chicago, Ill.
- Insurance Exchange Bldg. Chicago, Ill.
- Hearst Building..... Chicago, Ill.
- Otis Building..... Chicago, Ill.
- American Can Co..... Chicago, Ill.
- U. S. Military Prison.... Fort Leavenworth.
- Loose-Wiles Biscuit Co. Minneapolis.

Send for our new Catalogue.

C. A. DUNHAM CO.,

J. J. McKEE, Manager of Eastern Div.

No. 1 Madison Ave., New York City.

ROCK FOUNDATIONS FOR SKYSCRAPERS

Continued from Sixth Page

The caisson is then begun. The steel lining of the shaft, which under former methods was lost, is now made in self-lubricating form so that it can be unhooked from the concrete sides of the shaft, hoisted up and used again. This done, concrete is poured into the caisson at the bottom and the shaft above so that a solid block of concrete from rock bottom to the top of the excavation is the result.

Though in the Municipal Building, the foundation work was in the shape of clusters of piers scattered over the lot, as if the building were built on great stilts, in many buildings the caissons are sunk on the lines of the walls of the building, about 18 inches apart, so that after their completion the intervening spaces may be dug out and filled with concrete. This then forms a solid wall to the depth of the caisson itself, a concrete box which is absolutely water proof. Slanting grooves are left in the lateral ends of the caissons to permit the digging out of the spaces between them under pressure and the filling with concrete to make the "joints."

Tons of pig-iron weights are kept on hand in the contingency of a caisson getting caught so that it cannot sink. In the Municipal Building work was necessary as weight in order to sink some of the caissons, this in addition to the weight of the caisson itself, which was about 1,500 tons.

tion company. The contract in point of safety and thoroughness of the caisson process as contrasted with the open method is strikingly illustrated in the accident at the excavation of the Bristol-Meyers Building in Brooklyn not long ago. The sheeting and bracing gave way and the sides fell in, burying workers at the bottom of the pit. The flow-in of the earth from under the surrounding buildings so endangered them that the digging out of the man was prevented because of the risk to these buildings it would have entailed. The caisson method, subsequently used, did not disturb the building, and the man's body was found.

The old method of building foundations for large buildings, such as was used in the Equitable Building, now destroyed by fire, was to drive piles, assuming that they reached the rock. The thoroughness of the new method, whereby the rock bottom is actually seen, as compared with the former method, is striking. The manner in which many of the caissons of the caisson method cooperate somewhat automatically to the general advantage is also captivating to the mind untrained in engineering. As the material in the digging is taken out, the space is immediately refilled with solid rock-like concrete, the column of concrete grows longer and heavier, the increased weight advances materially its own progress.

The caisson method is expensive because of the high wages paid the sand-hogs and the expensive machinery operating the compressed air, the drills, the hauls, and so on.

In the foundation work on the Municipal Building, a total of 185 horse-power and 26 hoisting engines and derricks were used. As many as 150 sand-hogs were employed throughout the twenty-four hours.

stantly, there must be no leaking on carpets and no offensive odors from air valves; the pipes must be small enough to conform to modern fireproof building conditions, and above all the circulation of the steam must require no pressure, for pressure means coal, and coal means money. A vacuum system meeting these requirements is in use in many of the large buildings.

By this plan the entire heating system becomes an air-condenser. Air is drawn from the radiators by a vacuum pump which exhausts the air and passes and leaves behind a partial vacuum into which steam which already has done its work in lighting the building and running the elevators rushes without pressure. The water and air are discharged from the vacuum pumps into an air-separating tank from which the air is allowed to escape and the water to drain into the boiler-feed system to be used again in making steam.

In planning the heating of a big building every inch of space has to be considered before the pipes are put in. It is not easy to run a steam pipe through a concrete floor after the floor has set and therefore contractors have to be careful in their plans. Each room to be heated is considered by itself, how many feet of exposed wall, how much exposed glass, how much inside wall. These figures, together with the cubical contents of each room, are among the figures necessary for planning correctly the heating system of the building.

In the Municipal Building there will be 100,000 square feet of heating surface in the radiators and steam pipes, supplying heat to 4,000,000 cubic feet of space. There is no danger now, say contractors say, of boiler explosions in the cellar, for the boilers in the big buildings are of the tubular type, and if one of their tubes blows out no great damage results.

DREADNOUGHT AND HOTEL.
Builder of Big Hostelry Points Out a Few Figures.

"A great many people consider that the construction of a great battleship, such as the Florida, is the highest type of construction achievement," said a man who is connected with the firm that is putting up the Hotel McAlpin, the other day. "Here's how it figures out: The Florida has a displacement of 2,825 tons; 100,000 tons of rock was displaced to make way for the basement, cellars and foundations of the Hotel McAlpin. There are 88 men needed to man the dreadnaught, while there will be 2,000 servants alone in the McAlpin. The normal coal capacity of the battleship is 1,967 tons; the hotel's is 2,780 tons. The battleship can stay away 49 gallons of oil in its furnace and get away with it, while the oil burners in the hotel will consume 1,000 gallons.

"The Florida has four acres of deck space, while the McAlpin, in its twenty-eight stories, has a floor space average of a trifle more than twenty acres. The ship weighs about 2,900 tons; the hotel more than 30,000. In the matter of staterooms there is no comparison, since these, in the hotel, number 1,550.

HEATING A MODERN BUILDING.

Economy and Efficiency the Factors Sought Now Attained.
The present day purpose to utilize every bit of energy is nowhere better illustrated than in the heating arrangements of the big buildings now being erected. Before an ounce of steam goes into the radiators in the thousands of rooms that a really great structure contains it already has done a day's work, the usual heating equipment making use of the exhaust steam from the engines that are running the generators.

There is no marked difference in the piping of a big building now from that of the business block of a dozen years ago, experts say. Requirements, however, have been raised. There must be no noise, the radiators must heat in-

FIRE COMPANIES BUILDING

Ready May 1st, 1912

25 Stories

80 Maiden Lane

27 Cedar Street

Near William Street

The Centre of the Insurance District

FIRE PROOF IN FACT

THREE enclosed and absolutely non-combustible stairways from ground floor to attic.

All steel columns encased in solid concrete. Cement floors.

Basement and sub-basement equipped with automatic sprinklers.

The Kind of Fire-Proofing Which Succeeds and Protects

Not "fire-proof" in name only, but based on the practical knowledge and experience of fire insurance companies.

8 Acres of Floor Space,
15,000 Square Feet to the Floor.

Main corridor 50 feet wide. All corridors and halls finished in white marble with marble floors. Offices supplied with hot and cold water, filtered drinking water, vacuum cleaning apparatus. Twelve elevators.

Law Library of 40,000 Volumes.

The Best Constructed, Best Equipped and Best Managed Office Building in New York City

Natural Light From All Sides

Reasonable rents and equal consideration to tenants desiring large or small offices

Home Offices of

Continental Insurance Co.

Fidelity-Phenix Fire Ins. Co.

For Plans and Terms apply to

FIRE COMPANIES BUILDING CORPN.

46 Cedar Street



Telephone
3739 Franklin



New York Brass Foundry Co.

104 Centre Street New York

Manufacturers of:

Brass Goods for Steam, Water, Oil and Gas. Brass, Bronze and Machinery Castings. Bronze Hydraulic Valves and Fittings



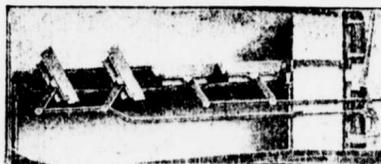
"Stillbech"

Bronze Unions

Established 1898
Incorporated 1903



Dean Dumping Grates



Means Strength and Long Life

The double support of each grate bar of the Dean Dumping Grate prevents warping and breaking in the middle. It's a feature that pays. There are also others.

Five hundred and eighty square feet to be installed in the Greeley Square Hotel.

Washburn & Granger

50 Church St. New York