



The question of insurance at the World's Columbian Exposition is one of great importance and magnitude and there is a rush for policies now. The Exposition management has carried insurance from the time that building operations were begun, and this insurance has been increased from time to time, as the work of construction has progressed. The rates have been the regular ones, varying from 75 cents on the Art Gallery and \$1.25 on the contents of this building to \$4 on the Dairy and Forestry buildings. The amount of insurance carried by the Exposition on buildings is over \$5,000,000, and it is not probable that this amount will be increased much, if any. Outside of this insurance the Exposition will probably carry \$1,000,000 or more on special exhibits that have been loaned with the distinct understanding that the Exposition be responsible for their safe keeping and return.

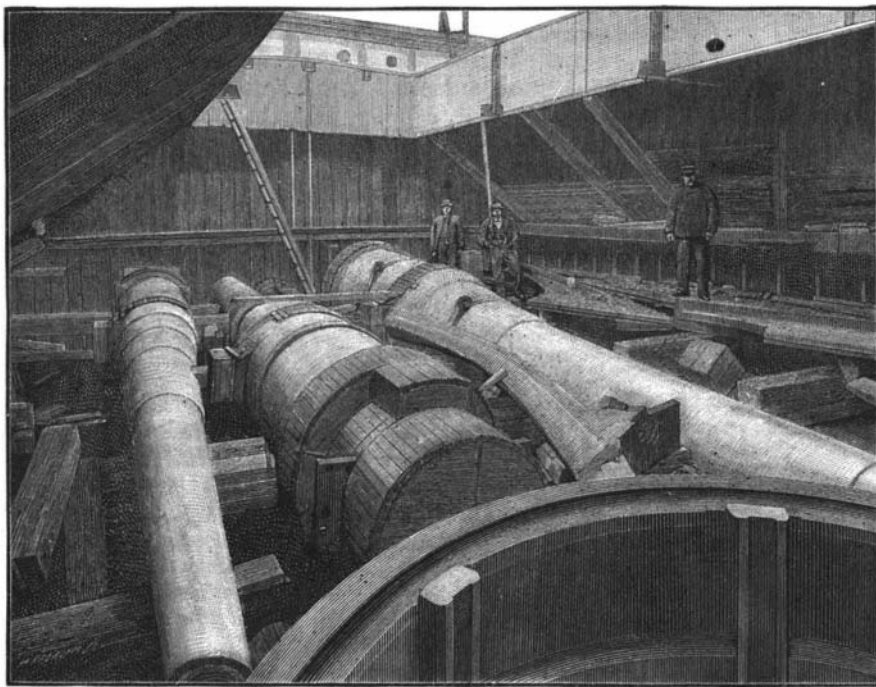
Every precaution possible to prevent fire has been taken. Most of the work in laying out the grounds, constructing the buildings, arranging the electric wiring, planning the power plant, etc., has been done in accordance with suggestions and recommendations made by the insurance underwriters. In a few instances the recommendations of the insurance companies have not been acted upon, such, for instance, as having each building at least one hundred and twenty five feet distant from any other building. In general, however, the wishes of the insurance companies have been recognized. A complete fire department has been established on the grounds, and has been increased from time to time as seemed necessary. The fire alarm system covers every section of the grounds, and alarm boxes are near together in the locations where fire would cause the most danger. Altogether there are some 150 alarm boxes within the Exposition grounds, and 13 in the Midway Plaisance. Hydrants are in great abundance both within the buildings and in the grounds. Thus, in the Manufactures and Liberal Arts building there are eighteen hydrants, ten in the Horticultural building, ten in the Palace of Mechanic Arts, eight in the Art Gallery, eight in the Transportation building, and two or more in all the other buildings. Each building, except the Art Gallery, has a standpipe rising to the roof, at intervals of one hundred and fifty feet. These standpipes have hose connections on the floor, in the gallery, and on the roof. The Manufactures and Liberal Arts building has over two hundred of these hose connections, and each of the other buildings has as many in proportion, so that every possible precaution against fire is taken. Each one of these reels is supplied with fifty feet of hose. There are forty hose carts stationed in the fire department buildings throughout the grounds, four of them being in Midway Plaisance. The fire department is fully manned. In addition the Columbian Guards are trained to do duty in this respect. The water supply for fire service is ample for all possible conditions. Four pumps in the Exposition grounds have a capacity of forty million gallons a day, and in addition, connection is had with the main city water service, so that no possible contingency shall arise where there will be a lack of water. The fire department is further supplied with several steam fire engines, a number of chemical engines, a truck company, over a thousand hand extinguishers, pails, and an abundant supply of hose. A fire boat designed for special service in the shallow waters of the lagoon and canals lies in the South canal, under steam at all times ready for service. This boat has a pumping capacity of four first-class fire engines.

The floors of four buildings are several feet above the ground, leaving a large area underneath. These buildings are the Manufactures and Liberal Arts building, Agricultural building, Electricity building, and the Palace of Mechanic Arts. In order to protect these buildings in case of possible fire under the floor, these great areas have been cut up into comparatively small compartments by means of partitions, thus great-

ly reducing the draught and the facilities for a fire to spread. In the floors are many entrance ways into these compartments, designed with special reference to the use of firemen.

Exhibitors make their own arrangements for insurance. Those who made these arrangements months ago were fortunate, as the market is now somewhat congested and rates are high. Three and one-half per cent is frequently paid, and instances are reported in which as high as six per cent has been paid, though as a general thing there is not much if any increase over the regular tariff rates. Some foreign exhibitors are carrying insurance which covers the exhibits in transit, during the holding of the Fair, and their return. There is no way of even estimating the amount of insurance that has already been placed and that will be placed, but it will run up into the millions.

The work of installing exhibits in the Mining building has progressed sufficiently to show that this exhibit will be particularly complete in mineralogy and metallurgy. The most conspicuous exhibit is in the center of the hall and is made by Germany. Strictly speaking, it is not a mining exhibit, as it comprises a complete variety of samples of T and angle iron, sections of pipes, which are placed one within the other, size for size, making quite a striking effect of the sectional side, also an elaborate display of tubes and samples of tube bending, together with a display of structural iron. There will be quite a display of mining machinery in the building, but practically all of the electrical mining machinery will be shown in the Electricity building, because of a recent rearrangement of the classification of exhibits. The display of building material, both stone and terra cotta, gives promise of being very complete, as also the display of coal. This department has been hampered for lack of space, as it could have utilized an annex with an area equal



THE KRUPP GUNS FOR THE COLUMBIAN EXPOSITION.—[See p. 228.]

to the main building itself to good advantage. The underground exhibit in this building will comprise a tunnel three hundred feet long, which will be fitted up as a model mining tunnel, with conveying apparatus, hoists, etc.

There has been an appearance of more improvement in the past few days at the Exposition grounds than at any time since its inception. About ten thousand men are now employed in the various kinds of work, and in every department every man is used that can possibly be found place for. So far as the Exposition management is concerned, work does not lag in any respect, and every day gives reason to believe that the Exposition, so far as the management is concerned, will be as near a state of completion on May 1 as has been prophesied before in these columns. A large army of men is at work arranging the flower beds which were made last year. The roses and plants are found to have passed the winter successfully, the percentage of plants killed being very small. All parts of the grounds, except the main driveways, are being cleared up, and hollow places filled up, so that the work of finally preparing the grounds for the opening of the Exposition may be completed at very short notice. The weather guards that have been protecting the McMonnies fountain and much of the other statuary about the grounds and buildings have been removed, thus giving an appearance of a nearer approach to completion than the grounds had borne evidence of before. Staff workers are examining all the buildings, walls, and other places where staff is used, and are replacing broken pieces and renewing all injured places. At the same time that this work is going on, painters by the hundred are putting on finishing touches of paint. In short, an immense amount of vigor has been injected into all of the work going on.

The greatest fear for some time has been that the great power plant in the Palace of Mechanic Arts would not be ready in time, and there is yet some danger that this fear may hold good, but if such is the case it will not be the fault of the Exposition management, but of the exhibitors. Practically all of the arc lighting plant is in the building and the dynamos are set, so that all that is necessary so far as they are concerned is to be belted to the engines. The incandescent lighting plant could, if necessary, be entirely completed, so far as the dynamos are concerned, by the 10th inst. If it is not completed by that time, it will be simply because of their not being rushed, but the installation will be completed in plenty of time for the opening exercises. The generators for the electric power are in place and several of them are in operation, so that it can be said that the entire electric equipment is already installed. At least half of the engines are on their bases and in a stage of completion varying from the placing of the foundation plate to others in full operation. The two thousand horse power quadruple expansion Allis engine, which is to be the center of the plant, is nearly installed. All the boilers in the main boiler house are installed and ready for operation, with the exception of four, and it will be but a few days before these are completed. Exhibitors, however, are rather backward in their work in this building. The foreign nations are somewhat ahead of American exhibitors, but unless there is a considerable amount of heavy apparatus to be handled, the entire exhibit should be in a very fair state of completion by May 1, if there are no unexpected delays.

So far as the work on the Exposition buildings is concerned, it can be said that it is done, except in the case of the four buildings upon which the work of construction began about March 1. These are the Children's building, the Public Comfort building, Festival Hall and the office building for the treasury department. This last named building, the foundation of which was not laid until the 1st of March or after, is about completed so far as the exterior is concerned. All the staging and weather guards have been removed from the Administration building, both exterior and interior, and as the gilding of the dome is nearly completed and the staff workers have repaired the few pieces of broken staff on the exterior, the structure shows the grandeur of its conception.

Admission tickets to the Exposition were put on sale in Chicago and other parts of the country April 1. Each ticket is good for one admission at any time during the holding of the Exposition. The tickets are printed on very heavy, fine quality paper, like bond paper in composition, and are of great strength and durability. The tickets are $2\frac{1}{4}$ by $4\frac{1}{2}$ inches in size and are of four designs. Vignettes of Columbus, Washington, Lincoln and a fully feathered American Indian are used, thus representing the four important periods of the history of America. Every possible precaution has been taken to so make these tickets that they shall be impossible of counterfeiting, and it will be impossible to use them a second time, because as a ticket is dropped into the automatic turnstile at the gates to the Exposition grounds it is cut in such a way as to disfigure it beyond redemption.

Last week attention was called in these columns to the untruthful reports that had been circulated regarding extortions that the Exposition management had permitted to be planned by the allowing of concessions for all sorts of purposes. These stories have become so numerous that the Exposition management has at last taken notice of them, and in a letter to the public President Higinbotham explains the whole matter of the concessions, showing, as was shown in these columns, that there will be no extortion at all, but that the comfort of the visitor will be provided for in every respect free of charge, while at the same time visitors who are willing to pay a moderate sum for special attentions can be accommodated.

The Exposition authorities are making every effort to prevent the smoke nuisance, which has always been one of the disagreeable features of Chicago, making itself conspicuous at the Exposition grounds. The temporary steam plant that has been used in the grounds has used soft coal and a good deal of black smoke has been emitted, but now that the buildings are being given their final coating of paint, and that the "White City" may be such in fact as well as in name, the smoking chimneys are being stopped. Crude petroleum is the only fuel that will be used in the Exposition grounds, and the many hotels adjoining the grounds have been given formal notice to use either smoke-consuming devices or fuel that makes no black smoke. This rule is to be rigorously enforced,

and the freedom from smoke will add greatly to the attractiveness of the Exposition and to the comfort of the visitors.

Fifty or more small pavilions are being constructed throughout the World's Fair grounds, convenient to all the promenades and main arteries of travel, for purposes of dispensing soda water, confectionery, and other things. These buildings are constructed under the concessions granted for this purpose.

The arrangements for a corps of guides to do duty during the holding of the Exposition have been completed, and the guides will be appointed at once, in order that they may be properly trained and educated for the work they are to undertake. There will be about 250 of these guides; probably 25 of them will be women. The guides will wear a uniform, and will be systematically organized and officered. Headquarters will be established at different points in the grounds, at which visitors can make arrangements for guides.

Preparations are decidedly evident on every side in Chicago for cleaning up and preparing for the reception of visitors to the Exposition. Railroads are repairing their tracks, renewing and fixing their rolling stock, and painting and otherwise improving the facilities of their stations. The hotels for weeks have been

annex of the Agricultural building for the special purpose of installing larger exhibits, such as passenger cars, locomotives and rolling stock of all kinds. The table runs on seven tracks and is of sufficient capacity to accommodate cars eighty feet long and any weight up to about 200,000 pounds. The tracks on which it runs are two feet below the grade of the tracks on which exhibits are shunted, and below the spur tracks in the grounds, but the table itself is on a level with the tracks. This table is operated by a twenty-five horse power electric motor which is placed in the cab in the center. This motor is wired for five hundred volts, and takes current from two trolleys of bare wire placed in boxes near the two rails in the center. The motor can also be attached to a revolving drum, by means of which cars or engines can be hauled on to or off the transfer table by the use of a steel cable. This transfer table was manufactured by the Industrial Works, Bay City, Michigan, the same company that manufactured the locomotive cranes used in most of the other buildings in handling exhibits.

THE KRUPP EXHIBITS.

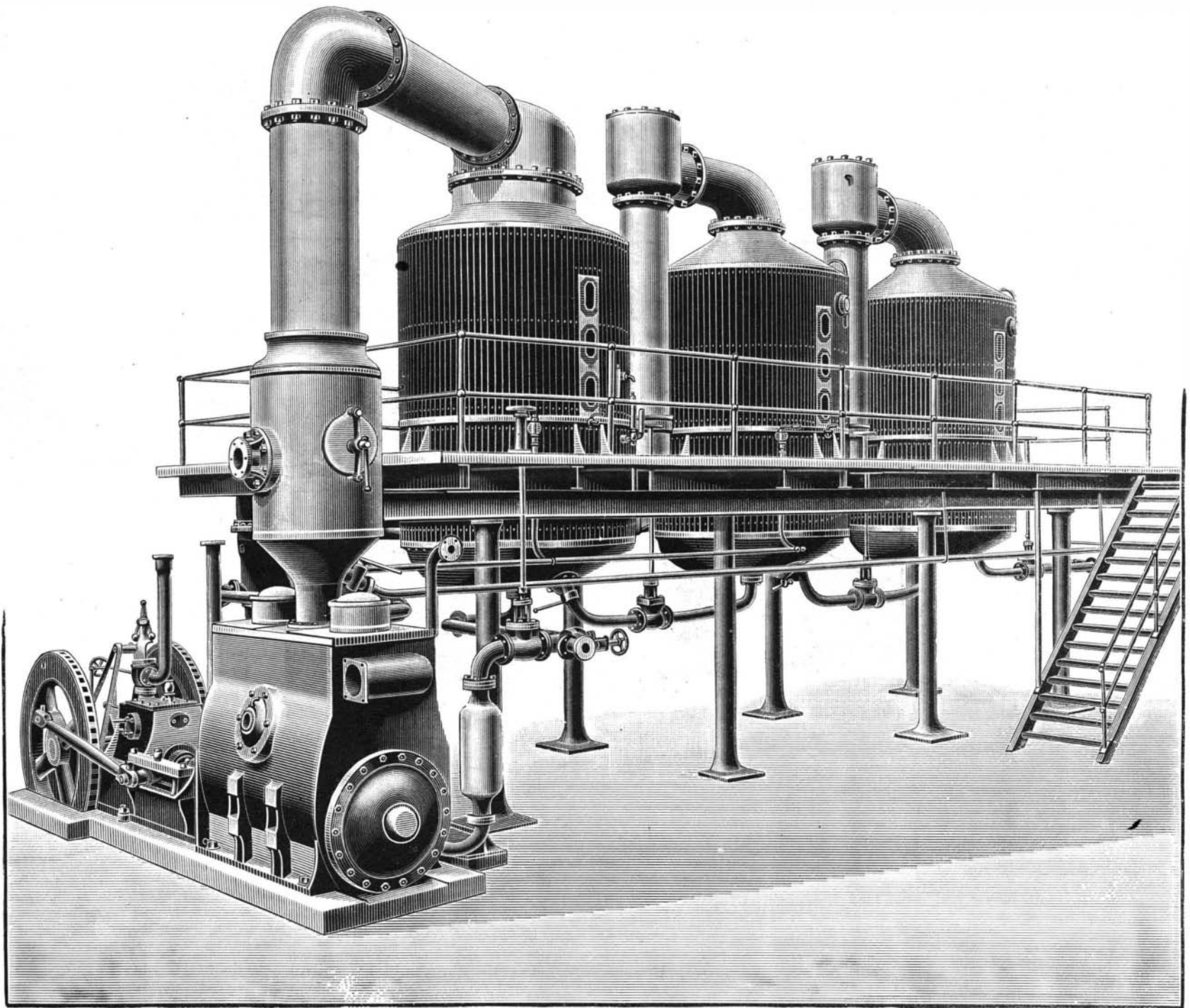
The steamship *Lonquiel* lately arrived at Baltimore, loaded with the Krupp exhibits for the World's

special railway truck of great strength for the carriage of the great 120 ton gun to Chicago will be illustrated probably in our next.

IMPROVED TRIPLE EFFECT EVAPORATOR.

We illustrate a triple effect evaporator, by Mr. Harvey, a member of the well known firm of McOnie, Harvey & Co., of Scotland Street Works, Glasgow, and given in a recent number of the *Engineer*, London. The general arrangement is very clearly shown in our engraving, the vacuum pump seen on the left being of extra large size. For those of our readers who are not versed in sugar machinery, it will be enough to say that the sirup is boiled *in vacuo*, and therefore at a temperature so low that all chance of charring or discoloring the sirup is avoided. The steam produced in the first "calandria" or vacuum pan is used to heat the second calandria, and that produced in the second heats the third.

The advantages claimed for Harvey's patent evaporating apparatus are complete and rapid circulation of the juice, combined with proper distribution of the steam in the most effective manner for the heating of the juice, by the proper proportion of the various vapor pipes connecting the vessels, also in the form and



IMPROVED TRIPLE EFFECT VACUUM EVAPORATOR.

undergoing a thorough renovation, and everywhere similar preparations have been going on. Now the city authorities have begun work in earnest to clean up the streets and alleyways. An army of men, with scores of teams, has been put to work in all parts of the city, and there is every prospect that Chicago will be cleaner on the 1st of May than it has been for years, if ever before in its history. This thorough cleaning up is a matter of considerable importance to intending visitors to the Exposition, because of the increased healthfulness of the city that will result.

Arrangements have been fully perfected for publishing a daily paper at the Exposition grounds. It will be an eight page paper, issued each morning, five pages being made up each from a stereotype of the first page of the five morning papers published in Chicago; the other three pages will contain official notices, programmes, and other important matter regarding the Exposition. The paper will be called the *Daily Columbian*.

An electric transfer table has been installed in the

Columbian Exposition. Our engraving shows three Krupp guns in the hold of the *Lonquiel* as they came over. The longest gun is one near which the men are. These are Captain Williamson, of the *Lonquiel*, Mr. Stone, boss rigger, who has charge of the lifting, and Mr. Henry, one of Krupp's men.

Besides the guns seen there are two smaller ones. The piece of steel seen in the foreground is a portion of a ram.

The largest gun is 120 tons weight, 18 feet circumference at the breech, 46 feet long, 22½ inches diameter of muzzle outside measure and 17½ inches diameter of bore.

The middle gun in picture weighs 62 tons; the other in the foreground, 43½ tons; the smaller ones, 32 and 14 tons each.

There are besides these in the vessel one shaft, 22 tons, 83 feet long, 17 inches diameter; one gear wheel, 25 tons, 10 feet diameter, 14 inches thick; two armor plates, 16 tons each, 16 inches thick; two 27 tons each, 20 inches thick, and one 65 tons, 22 inches thick. A

position of the vapor inlets to the calandrias. The condensed water outlets from the calandrias are made very large, and are connected to patent water and vapor receivers. There is a special arrangement of pipes and cocks connected to the main condenser, by means of which gases of any density lodging in any part of the calandrias are immediately drawn off, the accumulation of such gases being one of the sources of interruption to the free distribution and circulation of the vapor or steam in the calandrias. The usual back pressure or exhaust steam of 3 lb. to 5 lb. per square inch is ample to work the apparatus, which is automatic in its action, and owing to its extreme simplicity and moderate price has given, we understand, great satisfaction to sugar planters in various parts of the East and West Indies, reducing the cost of labor and effecting a very great saving in fuel, so that in some cases no coal is required.

SOUTHERN Pacific locomotives will soon use for fuel bricks made of coal dust and asphaltum.