

sists of two oscillating cylinders of 4 inches diameter and 4 inches stroke, the distribution of steam in which permits of a reversal of direction and of a variable expansion. These parts are not visible, since they are inclosed in order to protect them against dust and all other causes of deterioration.

The speed of the carriage is 18 miles per hour. It is capable of ascending gradients of one-tenth at a speed of $4\frac{1}{4}$ miles per hour. The amount of fuel consumed is from $2\frac{1}{4}$ to $3\frac{1}{4}$ pounds per hour. The smokestack emits neither smoke nor steam. The exhaust steam from the cylinder makes no noise. The wheels make a little more noise than do those of other carriages, on account of the speed of the carriage, and its weight, which, in running order, with six passengers and a stoker, is 3,960 pounds.—*L'Illustration and La Nature*.

THE LAYTON ART GALLERY, MILWAUKEE, WISCONSIN.

We give a perspective view, ground plan, and transverse section of the art gallery now in course of erec-

tion at the corner of Jefferson and Mason Streets, Milwaukee. The building is being erected at the sole expense of Mr. Fred Layton, a local art lover and successful merchant, who intends, on its completion, to present it to the city. So says the London *Building News*, to which we are indebted for our illustration. The ground or principal floor comprises three picture galleries, opening conveniently from a central apartment, and connected together by wide doors. These and the central gallery, to be devoted to statuary, are lighted by skylights of ample dimensions. On this floor are a curator's room, retiring and cloak room, and lavatories, all conveniently situated near the entrance hall. In the basement are two large rooms and an unpacking room, and extensive arrangements are provided for the heating and ventilating, a matter of the first importance in a climate such as that of Wisconsin. The exterior of the building is being constructed of the best quality of buff Amherst sandstone, straw colored Milwaukee pressed brick, and terra cotta of a similar tint manufactured by Messrs. True, Brunkhorst & Co., of Chicago. Granite, plain and polished, will be used for steps, and certain other portions liable to wear and injury. The roofing will be of tin plate, laid on terra cotta roofing plates, supported by T iron rafters. This class of covering has

The Largest Elevator in the World.

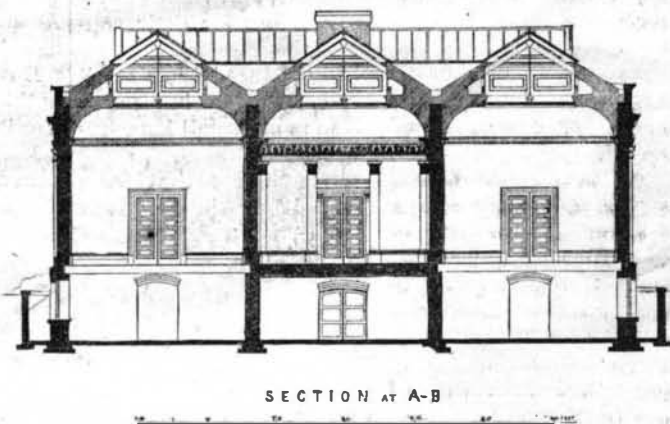
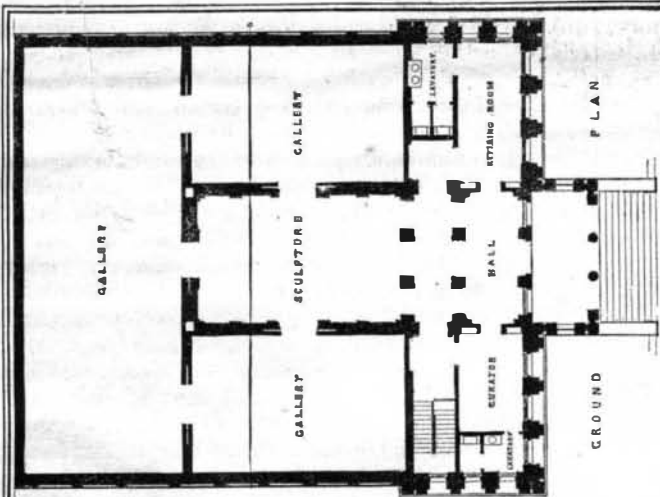
Says a Northwestern contemporary of late date: Wheat is now pouring into Minneapolis at the rate of 300 to 500 cars per day; and to those who are not acquainted with the facilities for handling the enormous quantity of grain, the problem of what becomes of it all is mysterious and interesting. The double rows of big mills alongside the falls are greedy monsters, and at this time there are daily poured down their hungry throats about 225 car loads, or 130,000 bushels, of wheat. While a portion of the wheat, on arriving from the country, is sent directly to the mills, the bulk of it has to be first stowed in the elevators to be cleaned and prepared for milling, and afterward drawn upon as occasion requires.

A description of the method of handling wheat in an

crop of Minnesota and Dakota during the season. On every floor of the building are automatic sprinklers, which deluge the place in case of fire. As an extra precaution, 800 feet of $2\frac{1}{2}$ inch fire hose and eighteen fire extinguishers are stored in handy places about the building.

An elevator is simply a mechanical contrivance for lifting grain from the ground to the upper floor. Two railroad tracks run through the Union Elevator, and the trains of cars are taken in at one end and pushed out empty at the other. When a train arrives at the elevator, the cars are backed up to the entrance, a rope is attached, and they are drawn into the building. The doors of a car are opened, and two men with shovels as large as road scrapers drag the grain into a deep pit.

These shovels are drawn by chains worked by machinery, the men guiding them in their course from the ends of the car to the door at the side. The average time for unloading a car is five minutes, and nine cars can be emptied at one time. One hundred and forty-five cars were easily unloaded in ten hours last week.



THE LAYTON ART GALLERY, MILWAUKEE, WIS.

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elevator is interesting. The erection of the Union Elevator at Minneapolis Junction, on the Manitoba road, this year, gives to Minneapolis the distinction of possessing the largest grain elevator in the United States, and, its owners claim, the largest in the world. No other building in the city attracts so much attention as this large house, whose gray corrugated walls loom up against the clouds like a mountain. The cities of New York and Chicago have a number of groups of buildings under the name of one storehouse whose combined capacity is greater than the Union, but no other independent building in the United States equals it in size and capacity. The total cost of the building is \$300,000. It is 336 feet long, 92 feet wide, and 175 feet high. Its actual storage capacity is 2,000,000 bushels. There was used in its construction 6,500,000 feet of lumber, and thirty-two car loads, or 10,000 kegs, of big nails were required to hold the planks together. Mr. Cook, the enthusiastic young foreman in charge of the building, says the actual number of nails was 13,353,900, although he declined to say that he had counted them. A giant Corliss engine, of 450 horse power, moves the machinery, and its steady strokes are almost noiseless. The elevating capacity is 175,000 bushels per day, but this can be increased to 250,000 bushels on a pinch. The proprietors say that they can handle the entire

and, as the foreman remarked, "he was running only on five legs." The legs of an elevator are the long wooden boxes, or tubes, extending from the pit into which the wheat is dumped from the car to the receiving bins at the top of the elevator. Running up these legs are belts 24 inches wide, on which are fastened oblong metal cups, which catch the grain as they come up through the pit. After being carried to the top it is discharged by centrifugal force into a spout leading to the receiving bins, where it is weighed. From these bins movable spouts lead to the various storage bins, other spouts lead to the shipping bins, which hold a car load each. There are 104 of these shipping bins, and that many cars can be loaded and sent to the mills without refilling the bins. There are nine discharging spouts, and nine cars can be loaded at once, the time being about three minutes. A car load is from 500 to 560 bushels.

The Union was built by Minneapolis men under the title of the Union Elevator Company, at the solicitation of President Hill, of the Manitoba road, in order to relieve the tremendous pressure on the rolling stock of his road, and facilitate the movement of the constantly increasing crops. Ex-Governor John S. Pillsbury is president of the company, and Horace Pratt vice-president.