

NEW FLASH LIGHT AND FOG BELL AT CONEY ISLAND POINT.

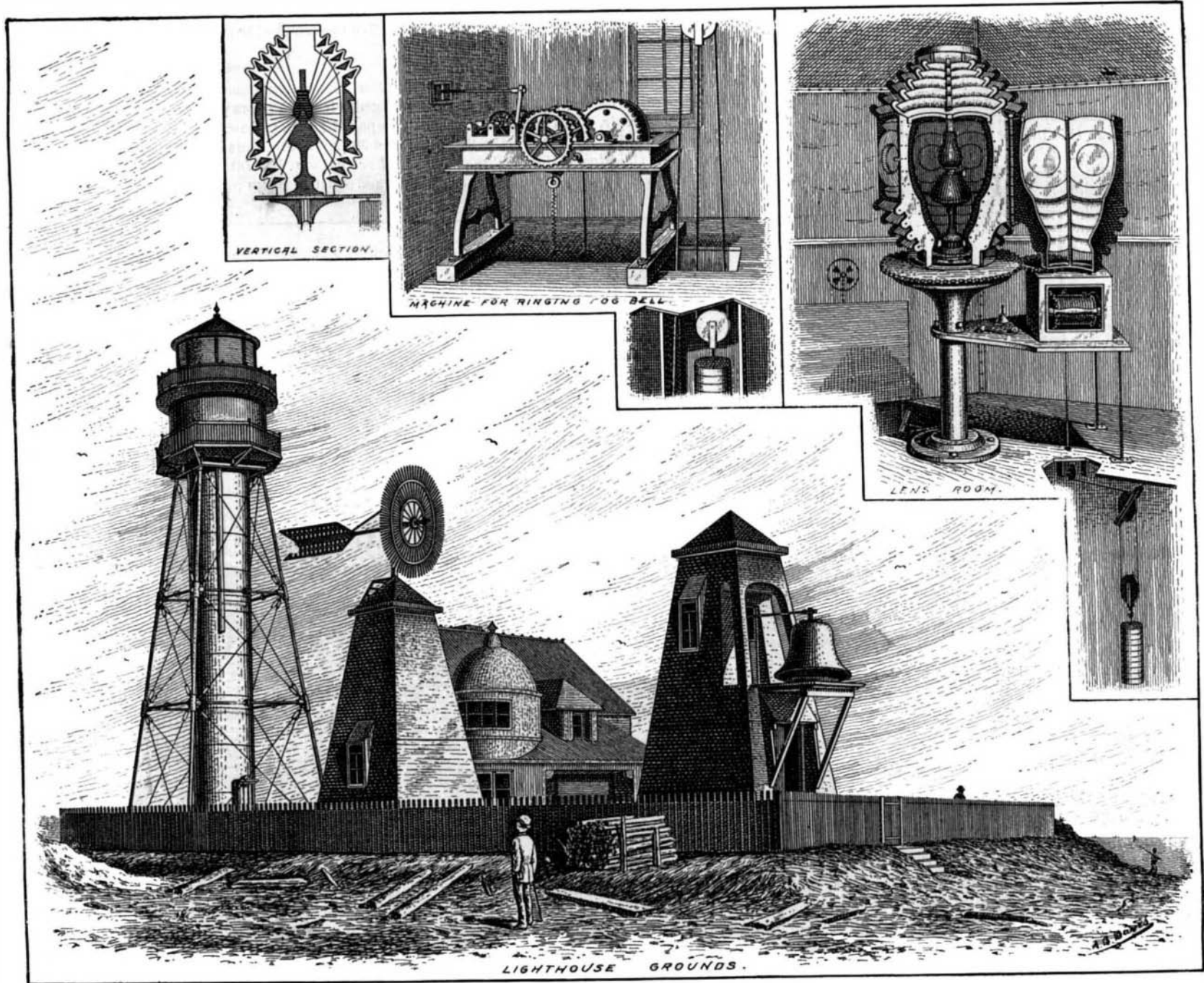
This new lighthouse is 81 feet in height above the foundation, and is $76\frac{1}{2}$ feet to center of light above low water. The cylinder on which watch and light rooms stand is 60 feet in height and 6 feet in diameter, and is made in nine courses of $\frac{3}{4}$ inch wrought iron. The four supporting rods are 6 inches in diameter. These are braced every 20 feet on the four sides by 4 inch girders and $1\frac{1}{2}$ inch cross braces. The four upright supports are each bolted to the foundation by four $1\frac{1}{2}$ inch bolts. The foundation is 24 feet square at the top. Piling of white oak was first driven down to the depth of 32 feet. On the piling were placed two rows of yellow pine timber 12×16 , one row crossing the other, leaving an opening between each timber of 12 inches. The open spaces were then filled up with concrete. The timber was then covered over with 18 feet of concrete. The watch room above the top of cylinder is about 9 feet in height and 9 feet in diameter. It is fitted up with closets for keeping lamp chimneys,

one winding up for three hours. The bell rests on a pedestal running up on the inside and fastened to the top. The hammer works on a pivot at the top, striking the bell on the inside. The bell weighs 1,482 pounds and can be heard from 1 to 5 miles, according to the state of the weather. The size of lighthouse grounds are one and one-sixth acres. There is also a wellhouse and cottage upon the grounds. The depth of sunken well is 21 feet. The cottage contains 8 rooms with cellar. The grounds about the buildings had to be remade. They were first covered with 18 inches of yellow clay, over the top of which was added 12 inches of soil and then sodded. The lens was made by Sautier & Co., Paris, France. Cost \$1,500. The entire grounds and buildings cost about \$28,000.

A New Harlem River Bridge.

Work has been begun on a new bridge over the Harlem River at Seventh Avenue, New York City. The plans have been prepared by A. P. Boller, C.E. 71

tively low resistance. The electrical resistance of such a wire varies according to its temperature; so that the reading of the one gives the other by consulting a table prepared with reference to the zero of the instrument. The well known Siemens electrical pyrometer depends upon the same principle; but in this case the zero is known to change largely and continuously. Mr. Callender, however, indicates that this effect is due to the imperfect design of the Siemens instruments; and he declares that if the wire is pure to start with, and is protected while in use from strain and from contamination, its resistance, after having once been annealed, is always very near the same at the same temperature. Mr. Callender's improvements in the platinum resistance thermometer, or pyrometer, seem therefore to consist in the better protection and treatment of the platinum wire. This is differently treated according to the heats to which it is to be exposed. For use at temperatures below 700° C., the leads may be of copper or silver, and the tube of hard glass. For rough work at temperatures below $1,000^{\circ}$ C.,



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oil, etc. Above this is the light room, containing the lens. The room is about 7 feet in diameter and about 6 feet in height up to the top of the windows, where it runs up to a point about 2 feet, making the height of room from the center about 8 feet. The lens is of the fourth order, and is 2 feet and 10 inches in height and 20 inches in diameter. It is made entirely of brass and glass, and contains 90 curved prisms and 10 mirrors. The lens is bolted at the bottom to a 20 inch gearing wheel which revolves around on a ball socket inside of the pedestal. The pedestal stands in the center of the room and is 3 feet 6 inches in height and 6 inches in diameter. The lamp holds two quarts of kerosene oil and will burn 7 hours. The lens makes a red flash by means of a red globe on the lamp every 10 seconds, and one revolution in 1 minute 10 seconds. The light can be seen $16\frac{1}{2}$ nautical miles. It is run by clockwork connected to the gearing wheel holding lens. The weight used is 60 pounds. The lens will revolve four and a half hours with one winding up of weight. The keeper visits the light every four hours. To see the full force of light a person must stand directly in front of the mirrors. As soon as each mirror gets at an angle, the light disappears gradually and makes a red flash. The fog bell is rung by a Stevens machine. The weight used for ringing bell is 540 pounds, and will ring the bell with

Broadway, New York City, and it is estimated that the cost will be about \$1,250,000, the full amount appropriated by the legislature. There is one draw span of 412 feet in length, giving a clear water way of about 160 feet on either side of the central pier. It is estimated that this draw will weigh about 2,400 tons, and it will be operated by a 60 horse power engine. It will be one of the heaviest draw spans in the world. The stone work of the central pier is to be rock-faced ashlar in two-foot courses, the copings being all cut stone. The superstructure will be entirely of mild steel and the floor of the bridge will be of the buckle plate type covered with asphalt laid in bituminous concrete. The width of the bridge will be 67 feet over all, 40 feet of which is devoted to a roadway, with two 10 foot sidewalks on either side. The length of the bridge proper will be 731 feet, and the approach 1,740 feet, making the total length 2,471 feet.

The Electrical Pyrometer.

It appears from a paper by Mr. H. L. Callender, published in the *Philosophical Magazine*, that at last something like precision has been secured in a thermometer for high temperatures. This much-needed instrument is made by Mr. Callender in the form of a platinum resistance, the simplest shape of which consists of a coil of fine wire welded to leads of compara-

very fair results may be obtained by the use of a wrought iron tube. The instrument is the size of an ordinary thermometer.

An Aluminum Boat.

Interesting experiments have recently been made on the Lake of Zurich with a boat built entirely of aluminum. The boat weighs only about half a ton—viz., about half the weight of an ordinary boat of the same size. It was built at the works of Messrs. Escher Wyss & Co., of Zurich, the metal having been furnished by the Aluminum Works, of Schaffhausen, where it is obtained by an electrical process, the dynamo being driven, not by steam engines, but by turbines, which utilize the water power of the celebrated falls of the Rhine, so that the boat claims to be exclusively the product of Swiss labor and power. It carries eight persons, and, with a petroleum engine of only two horse, easily makes six miles an hour. Aluminum not being subject to rust, the permanent color of the boat is a beautiful dull white, while the chimney, being of polished aluminum, shines like silver. The trial trips of the boat were eminently successful, and it is anticipated that the construction of aluminum steamers, having the same capacity and only half the weight of the iron ones now used on Swiss lakes, has a great future before it.