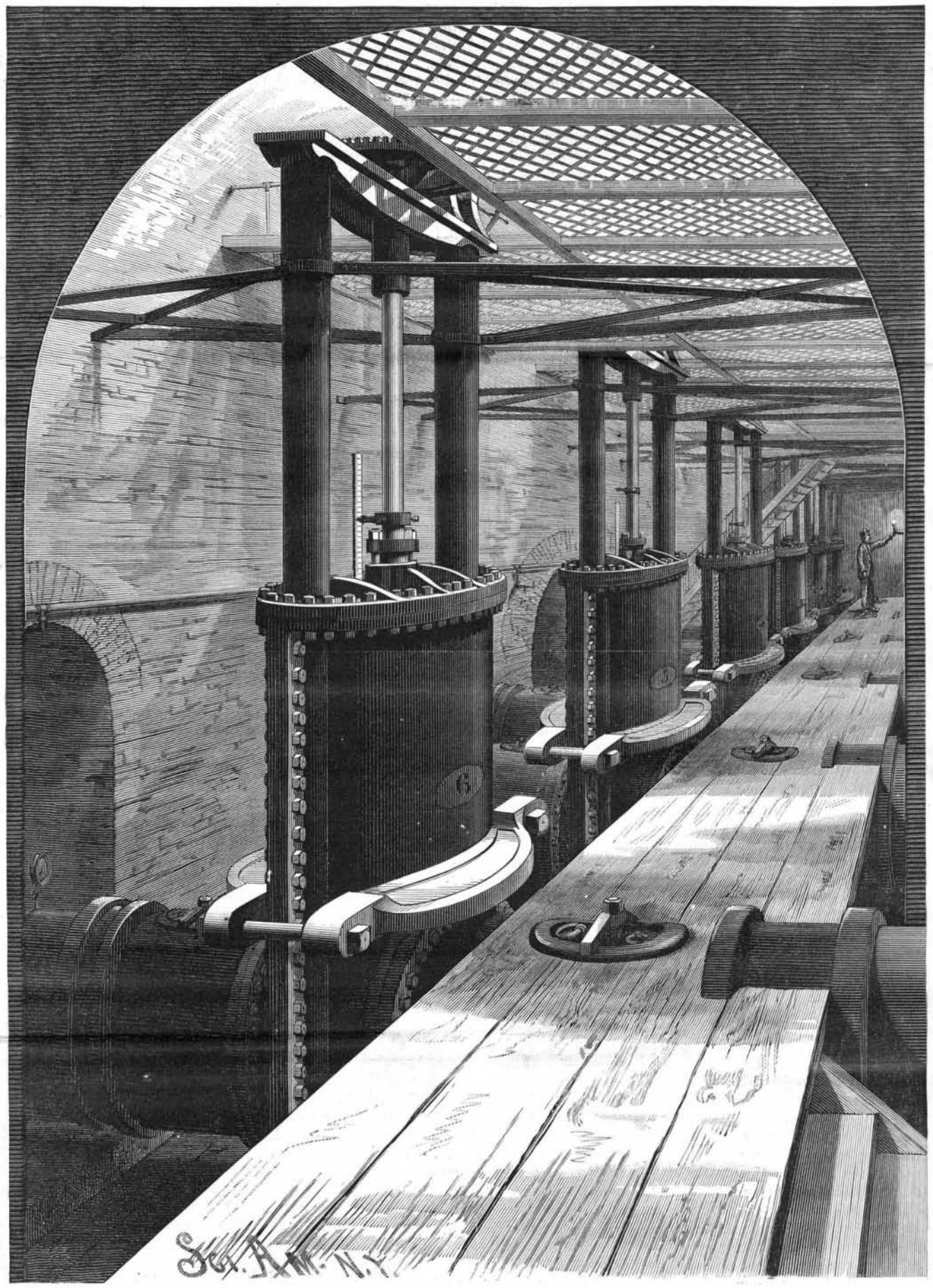
HANDLING THE WATER FOR A GREAT CITY.

In former articles in the SCIENTIFIC AMERICAN we have described and illustrated many of the most prominent features of the water supply of this city, from the reservoir and well erected on the Collect more than a century ago up to and including the aqueduct now building. In the present article, we propose to describe how the water is handled after reaching the city—in other words, to tell how it finds its way into the large mains extending to different quarters. At this time this subject is particularly interesting, since the water to be admitted through the new aqueduct will have to be distributed by the old methods and appliances, which are considered fully capable of easily controlling the increased quantity.



NEW YORK CITY WATER SUPPLY.—VALVE CHAMBER IN GATE HOUSE, CENTRAL PARK RESERVOIR.

[illegible] the whole of the present daily supply crosses the Harlem River over High Bridge, being conveyed from the Croton valley through what is generally known as the old Croton aqueduct. All of the water, except a small quantity pumped into a reservoir and high service tower located at the western end of the bridge, and such as is necessary to supply the district passed through, is then led to a gate house at 92d St. and 9th Ave. Part of this journey is made through a masonry conduit and part—that crossing the Manhattan valley—through cast iron pipes. At the gate house the water is divided, the smaller part going to the old reservoir in Central Park, which was built in 1842, and has a capacity of 150,000,000 gallons, while the rest enters the new reservoir, located a short distance north of the other, and which was completed in 1862, and has a capacity of 1,000,000,000 gallons. From the latter by far the larger portion of the supply is sent into the city, and it may therefore be considered the principal distributing center.

The new reservoir is divided into two sections or ponds by a wall extending across it. The water is admitted through a gate house at the northern extremity of this wall into either of the ponds. At the southern end is the main gate house, the valve chamber of which is illustrated in the engraving upon this page. Within the house is a large rectangular chamber or well, into which the water enters through valves, so placed that either side of the reservoir may be drawn from. The water passes from the well into six 48-inch cast iron pipes, five of which connect with the general distributing system, and one of which communicates with the old reservoir, that furnishes the supply for the western portion of the city, through two 48-inch pipes.

Each of the pipes is provided with a valve, which is operated by a screw turned by a hand wheel. A scale, graduated to feet and inches, is so arranged that the exact opening of the valve can be seen at a glance. Owing to the inadequacy of the present supply, these valves are opened but a short distance under ordinary circumstances. The gate house is in telegraphic communication with the fire department, so that whenever required a request can be sent for more water. Until recently such a request could not be quickly complied with, as it took at least half an hour to open one of the valves, the great weight of the valve itself and the pressure of the water against it rendering the work very hard and necessarily slow. This defect has been obviated by the introduction of two butterfly valves, which can be opened by one man in ten minutes.

These reservoirs also supply the high service station at 97th Street and 9th Avenue and the distributing reservoir at 42d Street, which will hold 24,000,000 gallons.

The gate house for the new aqueduct, which, when running full, will have a daily capacity of 250,000,000 gallons, will be located on the corner of 135th Street and Convent Avenue. Its outside measurements will be 100 by 56 feet. The illustrations comprising our frontispiece convey a clear idea of the general appearance of the building and of the arrangement of the interior. The exterior will be built of granite of contrasting shades, with hammer-dressed light granite trimmings. In the interior the water chambers and gateways will be faced with granite, and the stop-cock chambers on the south side of the main chamber and the vertical portion of the aqueduct inlet will be of brick. The roof will be iron trusses covered with slate laid in mortar. The top of the tower will be at an elevation of about 170 feet above tide level.

The interior is divided into two main water compartments. The larger one is 12 feet wide by 70 feet long, and receives the water directly from the aqueduct shaft, which is placed in the center of the tower, and rises about 40 feet above the aqueduct line. Alongside of this compartment are eight others, each 6½ feet wide by 9 feet long, the dividing walls being 2½ feet thick. In the walls are formed grooves for the reception of screens or stop planks. From these chambers the water passes through a slide gate (which serves to shut off the water in case the stop-cock valves need repairing) in each into eight 48-inch mains. In a third set of chambers, each of which is 7 feet wide and 12 feet long, the mains are provided with stop-cock valves. The accompanying plan and interior views plainly show the course taken by the water in its passage through the several chambers from the aqueduct to the eight mains. Four of these mains lead the water to the new reservoir in Central Park, from whence it will pass through the gate house first described into the distributing mains. The other four will connect with the general system at points along the route of the first four. A circular conduit, 10 ft. in diameter, indicated on the plan view, will connect with the present aqueduct at 135th Street and 10th Avenue. The depth of water in the entrance chamber to this conduit will be about 20 ft., while that in the main chamber will be 40 ft.; the water will be controlled by four gates operated, like all the others, by hoisting machinery on the floor above, connected with the gates by rods. The stop cocks will be operated from platforms below, as shown in the large view of the interior.

The estimated cost of the structure, which is to be completed on or before Sept. 30, 1887, is $250,000.

A Monster Gun.

What must be considered the heaviest gun at present in existence has been just shipped at Antwerp for Italy. It was manufactured by Krupp, is 46 ft. long, weighs nearly 116 tons without the breech piece, and 118 tons 3¼ cwt. with the breech. It arrived at Antwerp on a specially constructed carriage, 105 ft. long, and running on 32 wheels. It was at first intended to send the gun overland; but the St. Gothard railway and other Swiss railways objecting on account of its great weight, and fearing for their bridges, the weapon had to be taken to Antwerp, and thence forwarded to Italy by sea. Its ultimate destination is said to be Spezia, where it is to be mounted in one of the iron-clad ports guarding that harbor.