

MACHINERY OF THE WATER WORKS.

Description of Engine and Pumps— The Boilers—Testing of the Pipes.

The engine consists of two cylinders, of high and low pressure, and both are on the same frame. The high pressure cylinder measures 14 inches in diameter and has a stroke of 24 inches. The low-pressure cylinder is 21 inches in diameter, with a stroke of 33 inches. These engines are connected with the same shaft, cranks standing at quarters, and work on the compound principle. The engine is connected with the pumps by means of an intermediate shaft and gearing, the engine's shaft making four revolutions to one of the pump's shaft. These engines are provided with a variable cut-off, which is worked by an hydrostatic regulator, the operation of which is automatic. This regulator is connected with the main discharge pipes, so that the slightest variation in pressure of the water in the mains is felt, and through suitable mechanism motion is communicated to the variable cut-off, thereby increasing or diminishing the quantity of steam used. In case large quantities of water are being drawn throughout the city, there will be a slight decrease of the pressure in the main pipes: this will be communicated to the regulator, which through the above described mechanism will supply more steam to the engine, so that the power used is always in exact proportion to the amount of water drawn.

The two boilers used are tubular, with five feet shell, 16 feet long. There are 54 three and three-quarter iron tubes in each boiler. They are set in brick arches, with cast iron front. The ordinary pressure used on the boilers will be about 75 lbs.; but they are tested to about double this capacity.

The piston pumps consist of four cylinders, twelve inches in diameter, with 27 inches stroke, and are placed upon a heavy arched iron frame—two on each side, at an angle of 90 degrees to each other. The cranks are so arranged that the pumps take suction eight times during one revolution, thus producing an even and steady flow of water. The main driving gear is two feet in diameter, and 16 inches face. The teeth of this, as well as all the other gear, are cut.

The rotary pump will be used in case of large fires, or accident to the other pump. It is constructed on the same style of those used on the celebrated Silsby steam fire engines, which have been so successful in the West. This rotary pump is an invention of Mr. Birdsill Holly, who was formerly a partner of Mr. Silsby. Its capacity is two million gallons a day, and alone can throw six to eight effectual fire streams.

The entire machinery is made of highly-polished steel, iron and brass. The iron frames will be handsomely painted and ornamented by A. B. Marston, of this city, and when completed will present a very attractive and pleasing appearance.

The suction pipe is 16 inches in diameter and is connected with a temporary crib below the dam. This crib will only be used until the dam is completed. After that the water will be taken from above the dam, and will pass through a filter of fine gravel, 250 feet long and 15 feet wide, from which the pumps will take suction.

The above described machinery is completed and ready for operation, and during the early part of next week, the work of testing the pipes will commence. It is expected that one pipe in four hundred will break, at 200 pounds pressure, which is a guarantee test. This is about 30 pounds in excess of what they will ever be called upon to stand. The essaying of these pipes is certainly a great advantage, as in that way all the weak ones can be discovered. This trial is one of the peculiar advantages of the Holly system, as with the reservoir system the pipes cannot be efficiently tested, and thereby the weak points cannot be discovered.