

## Water Works-Cement Pipe.

MASSILLON, July 11th, 1854.

EDS. LEADER: Seeing a discussion going on in your paper relative to the merits of cast-iron and cement pipes, in view of the construction of Water Works for your city, I thought it might, perhaps, be interesting for you to know that we are now laying down cement pipes in the construction of Water Works for this place; and which will in the course of sixty days, be put to the practical test. From a reservoir capable of holding over a million of gallons, the water is conducted through the bank in a fourteen inch cement pipe to an iron casting, branching three ways, two of which are for the reception of ten inch pipes, the third for a twelve inch pipe; the twelve inch branch is all we contemplate using at present, the other two are for the future. The water passes through the pipe three hundred and fifty feet, where it divides, the branches being at right angles with each other, each being respectively nine and a half and eight inches in diameter; from this point the water begins to be carried through the different parts of the town for distribution.

None of the main pipes are under six inches in diameter, the lateral pipes leading to the fire hydrants are four inches in diameter. We think the pipes are of a generous size for the amount of water to be distributed, but as the head of water is light, being only seventy feet, we wished to save the power which is lost in friction in passing through small pipes. The main pipes are made of No. 19 sheet iron, from the McKeesport Iron Works, Pa., and fastened with rivets weighing four pounds to the thousand, and placed one inch and a quarter apart; the inside coating of cement is then put in and left to harden. The outside coating is done when they are put down.

In making our estimates we calculate that there is strength enough in the iron alone to stand with safety the pressure of a two hundred foot head, and when it is completely encased in cement both inside and out, the strength is increased. It is the nature of cement to completely protect iron from corrosion. Place a piece of polished iron in a strong solution of lime water and it will not rust. For the inside coating we use Jersey City cement, with the thickness varying from a half an inch to an inch; it sets with water in about ten or fifteen minutes, so that the pipe can be moved without injury, and by being placed in low cool situations for two or three weeks, the cement reunites with Carbonic acid, and becomes hard and flinty, which process gradually continues until the whole mass becomes as hard as the original limestone. We decided to use this kind of pipe for the following reasons. 1st. In the first place, it has been fully proved to be able to stand any given pressure. 2d. Its cheapness, costing not over half as much as cast iron. 3d. It is perfectly imperishable, as the older it gets the harder it becomes, water having no effect upon it whatever, running through it pure and untainted. 4th. The facility with which it is put down, joints and connections made, and repairing done when necessary. We bring the different materials together and make everything here; commenced in March, and expect to have it finished by cold weather.

Yours truly,

A. T. SKINNER.