

BALL'S PATENT INDESTRUCTIBLE WATER AND GAS PIPE, MADE OF WROUGHT IRON, LINED WITH & LAID IN HYDRAULIC CEMENT,

Manufactured by the

“WATER & GAS PIPE CO.,”

AT JERSEY CITY, N. J.

Capital \$250,000.

JOSEPH BATTIN,
JONATHAN BALL,
NATHAN STEPHENS,
OBADIAH THAYER,
SILAS FORD,
JUSTUS SLATER,
WM. H. TALCOTT,

Directors.

JOSEPH BATTIN, *President.*

The Company are prepared to take and execute contracts to construct works to supply Cities and Towns with Water or Gas, or fill orders for Pipes.

The reduced price at which this pipe can be made and laid down, admits the Company to contract at considerable less cost than can be done for, with cast iron pipe.

The following are some of the places that have water works in successful operation, constructed with this kind of pipe:

SARATOGA SPRINGS, Saratoga Co., N. Y.
CAHOES FALLS, N. Y.
BRIDGEPORT, Connecticut.

WATERTOWN, Jefferson Co., (under pressure of 247 feet head.)
ROCKLAND, Maine.
ROCKVILLE, Connecticut.

Also extension of the pipes of the “Jersey City Water Works,” of “Buffalo Water Works, New Orleans, and in other places.

Want of space allows only to add the following statements :

The following is from the Water Commissioners and Trustees of the village of Saratoga Springs, N. Y. :

“In answer to the numerous inquiries in relation to J. BALL & Co's INDESTRUCTIBLE WATER PIPE, composed of iron and cement, and in use in our village, the undersigned, water commissioners, trustees, and late trustees of the village of Saratoga Springs, take this method of saying that we have perfect confidence in the utility, goodness, and durability of said pipe. The village of Saratoga Springs has some 20,000 feet of this pipe, varying from 6½ to 1½ inches in diameter, under a head of about 80 feet. It has been laid since the fall of 1846. Since it was fully completed, it has cost comparatively nothing to keep it in repair; and although some portions are exposed to the frost, it seems to stand well the test, and answer all the purposes for which it was designed and constructed. We believe it preferable to iron pipe—is much cheaper and more durable; and we would not exchange it for any other kind of pipe yet invented, if we could without any additional expense or inconvenience. The water comes through clear and pure; and where we have had any occasion to take any part of it up to improve or alter the grounds, it appeared to be just as sound and imperishable as the moment it was laid down. This testimony is entirely disinterested, and is now given to avoid the necessity of answering the many calls upon us for information on this subject. We have witnessed, and many of us have superintended, the laying down of the pipe in this village, and watched its operations since, and are perfectly satisfied that we have the best water-pipe ever presented to the public.

Saratoga Springs, December, 1849.

G. M. Davidson,	} Water Com.	R. Gardner,	} Trustees.
R. Putnam,		H. P. Hyde,	
N. B. Doe,		J. L. Perry,	
		J. D. Briggs,	

S. Chapman,	} Late Trustees.
J. A. Corey,	
W. S. Alger,	
William Cook,	

“I certify that I was Chief Engineer of the above work in charge, and fully concur in the foregoing statement.
Dec., 1849.

“S. R. OSTRANDER, Civil Engineer.”

CERTIFICATE OF PROF. HORSFORD, HARVARD UNIVERSITY. (Extract.)
CAMBRIDGE, SEPT. 28, 1853.

I have examined, somewhat in detail, the pipe manufactured by Ball & Co., for conveying and distributing water. I have repeatedly attended upon their manufacture, and the inspection preparatory to use. I have farther attended upon the laying down of the pipes, and observed the mode of imbedding in and coating with cement, the connection of sections of pipe, the piercing for lateral service pipes, and, I believe, all the various processes by which the pipes are fitted for use.

With strict fidelity on the part of the workmen and engineer, the above kind of pipe may be made and laid down so as satisfactorily to fulfil the general purpose of water distribution.

The advantage of the pipes of Ball & Co. are, that, after a few days of use, the water is transmitted entirely unchanged; the pipes do not corrode and encrust so as to diminish the service capacity; the strength increases with age; and the cheapness will make it possible to introduce water into places where the cost of cast-iron pipes would leave it impossible.

Jersey City, Jan., 1855.

E. N. HORSFORD,
Rumford Professor, Harvard University

ROCKVILLE WATER WORKS, CONN.

For the information of those interested in Water Works, we make the following statement:

In the fall of 1847, J. Ball & Co., of New York, laid of their Indestructible Patent Cement Pipes several miles in this village—ranging from eight to three inches calibre. The grounds are broken, through which the pipes are laid: the head of water ranges from eight to 140 feet, giving great efficiency to our hydrants and works throughout the village. The pipes are perfectly tight; and we unhesitatingly say that we prefer them to cast iron, and are confident that they will be far more durable; and, from close examination where they have been opened for tapping and branching, we believe them to be truly “indestructible,” besides being clean and pure.

J. N. STICKNEY.

New York, July 10, 1853.

MESSRS. BALL & STEPHENS:

On 31st May, I witnessed at the Corporation Yard in this city, in the presence of several engineers, a series of experiments on your pipe, as follows, the data of which I extract from notes made at the time:—“Hydraulic Cement pipe, made of No. 20 Iron, 11 inches diameter, 7 feet long, riveted at intervals of 1½ inches, with rivets weighing three pounds per thousand, lined half an inch thick with Rosendale cement, was subjected by hydraulic pressure to four hundred pounds to the square inch, and remained under this strain for several minutes without exhibiting any signs of weakness. The weight on the valve was then so placed as to bring the pressure to six hundred pounds per square inch, but just as the valve rose to blow off, the pipe burst, tearing away the rivet holes:” this piece would probably have borne a static pressure of five hundred and fifty pounds per square inch, without injury. Another piece of similar dimensions, of lighter iron, (No 23,) but riveted at intervals of 1 inch instead of 1½ inches, was then put in the press, and successfully subjected to 480, 500, 600, 700, and 800 pounds per square inch, without sensibly affecting it: the latter pressure was the limit of the capacity of the press; it was not, therefore, known what the piece would have burst with.

The amount of pressure which a wrought-iron riveted pipe would sustain, when made of known stock could be calculated upon data already well authenticated; but the durability of the pipe when in use, could only be determined approximately by analogy or experiment. In the latter part of May last, I saw at Saratoga Springs the main conduit uncovered, which has been in use nearly seven years: this is made of your cement pipe. I broke from the outside, a portion of the cement covering, and found the iron uncorroded and in appearance similar to a new stove pipe: this pipe is 6 inches in diameter. A specimen from the New Jersey Marshes which had been in use for nearly the same length of time, exhibited the same favorable appearance inside as well as outside.

As your pipes compared with cast iron is so much cheaper, and the water which passes through it is less affected than that which passes through iron, I have no hesitation in recommending it, where properly made and carefully laid, for all purposes where mains and street-service pipes are wanted.

EDWARD W. SERRELL, CIVIL ENG.

P. S.—Sections of Pipe of 20 inch calibre down to half inch, now on Exhibition at the Mechanics' Fair, held in the Hall of the Smithsonian Institution.