

HOBBIE, AYRAULT & CO.,

SOLE MANUFACTURERS,

IN THE NEW ENGLAND AND MIDDLE STATES,

OF

WYCKOFF'S PATENT

Water and Gas Pipe

FOR

WATER WORKS, GAS WORKS, RAILROAD TANKS.
TANNERIES, BREWERIES, COAL MINES.
FARMERS, AND FOR

Water Courses of Every Description.

FACTORIES AT

ELMIRA, N. Y. AND TONAWANDA, N. Y.

Office, 16 Railroad Avenue, Elmira, N. Y.

I. S. HOBBIE,

MILES AYRAULT,

JOHN A. HOBBIE.

ELMIRA, N. Y.

HORACE A. BROOKS, PRINTER AND PUBLISHER.
1873.

WATER AND GAS PIPE.

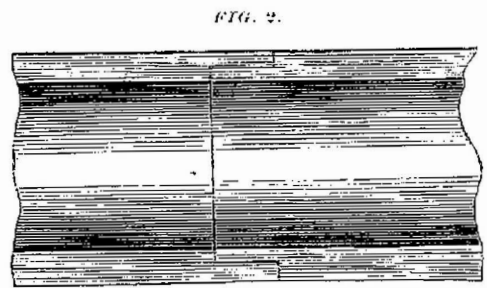
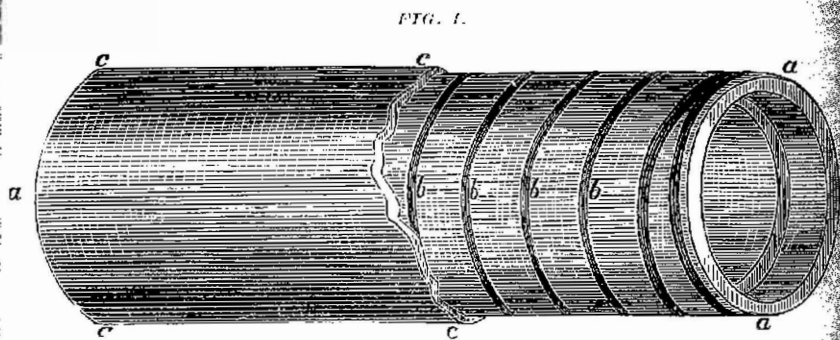


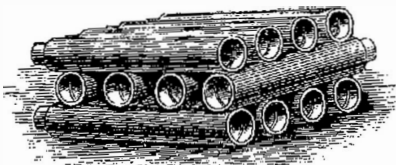
Fig. 1. View of Pipe.
 Fig. 2. Horizontal Section and Connection.
 a a Cylinder of Wood.
 b b Bands of Iron.
 c c Coating of Cement.

A 10-inch Pipe of the above description, banded with Iron 1 inch by 1/2 inch, tested March 8, 1860, sustained a pressure of 406 pounds to the square inch, equal to 940 feet head of water.

DANIEL MARSH, Civil Engineer.
 JAMES CAMPBELL, Supt. Kidd's Foundry and Steam Engine Works.

WOOD for conducting water has been used for many centuries, and among all the various inventions and improvements nothing has been discovered in which water can be carried so pure, clean and healthful as wood. The durability of wood under water, and even its indestructibility, is beyond question. This being the case, pipe made of wood, and kept constantly filled with water, will not decay on the inside, and the only question remaining is, can it be so prepared as to prevent decay on the outside? It is obvious that a coating which shall be impervious to air and moisture and at the same time indestructible, will accomplish this. During the last twenty years careful and extensive experiments with various materials for coating, have been made, and the pipe covered with the various kinds, from time to time taken up and examined. A substance prepared from asphaltum, and properly applied, is found to be exactly what is wanted. The question of durability being disposed of, the next is strength. Can it be made strong enough to sustain the necessary pressure? Experiments made in 1860 in Rochester, N. Y., by Daniel Marsh, Esq., Civil Engineer, proved pipe made in this manner to be capable of sustaining a pressure of *Nine Hundred and Forty Feet* head of water. The strength of the pipe of course depends mainly on the iron bands, and these can be made of any required dimensions, so that this kind of pipe can be made to suit any desired head. Another question important to be considered is, will not the bands rust? We answer the bands are wound on spirally by machinery, and as they are laid on, are passed through a preparation similar to the coating, which an experience of more than twelve years in the water works of this city (Elmira), which are built entirely of this pipe, prove to be perfectly effective for this purpose, as frequent examinations of the pipe show the bands and the pipe entire to be as perfect as when put down in 1860. Of the healthfulness and cleanliness of this pipe, and of its superiority in this respect over iron or cement, there can be no question. And when laid complete, the cost is but little more than *one-half*.

Our senior partner has been engaged in the manufacture of wood pipe since 1857, and has been in constant communication with the patentee, aiding and advising in all the experiments and improvements which have brought this pipe to its present state of perfection.



The Messrs. WYCKOFF have been for the last eight or ten years, up to April 1, 1870, manufacturing this pipe in this city, and have made and sold many miles. A large number of Water and Gas Works have also used it in nearly every State in the Union. The Erie Railway Company, Northern Central R. R., Pennsylvania Central, Union and Central Pacific, indeed nearly all the railroads in the country use our pipe. We can produce any number of testimonials in favor of its quality as a conductor of water and gas, but have space but for a few. We solicit investigation.

RECOMMENDATIONS AND TESTIMONIALS.

OFFICE CHEMUNG CO. JUDGE AND SUCROGATE,
Elmira, N. Y., April 4, 1863.

Having been one of the original corporators of the "Elmira Water Company," and interested as a stock holder in the works, I have paid some attention to the quality of the Pipe used in the construction of the work. I am satisfied that the pipe used ("Wyckoff's Patent Water Pipe") in point of durability and cheapness, is the best that can be obtained. It is now nearly three years since the first Pipe was laid in our works. It has been subjected to pretty severe tests, and I believe has more than met the expectation of all parties interested. I have no hesitancy in commending its use to others.

E. P. BROOKS.

We concur in the foregoing statement of Judge Brooks with reference to Wyckoff's Patent Water Pipe, and cheerfully recommend its use.

S. BENJAMIN, formerly President Elmira Water Company.
WM. T. POST, Chemung County Treasurer.
A. S. THURSTON, Ex-County Judge.
F. A. DEVOE, Proprietor Elmira Gazette.
MYLES AYRAULT, Sup't Elmira Water Company.
JOHN ARNOT, Pres't Chemung Canal Bank.
TRACY BEADLE, President Bank of Chemung.
S. B. TOMLINSON, Chemung County Clerk.
HORTON TIDD, Editor Elmira Gazette.
S. B. FAIRMAN, Editor and Prop'r Elmira Advertiser.
S. R. VAN CAMPEN, Treasurer Elmira Water Company.
WM. LEE, Chief of Police.
DAVID DECKER.

ELMIRA, N. Y., July 5th, 1869.

GENTLEMEN:—It is now nine years since our "Water Works" were put down, and there is no question whatever but what the Wood Pipe is just as sound as ever it was. Under the circumstances we have no means of calculating how long it will last, though I think it good for hundreds of years' service.

We have in these works about 11 miles of mains, from 12 to 4 inch bore, and the whole expense of keeping the same in repair since July last (one year), is \$7.28

The following named gentlemen will cheerfully certify to the length of time the Pipes have been laid and their durability.

GEORGE M. DIVEN, Secretary Elmira Water Works.

E. P. BROOKS, Ex-County Judge.

JERVIS LANGDON.

EDWIN ELDRIDGE.

A. S. THURSTON, Ex-County Judge.

THOMAS SPAULDING, County Judge.

JOHN ARNOT, Banker.

H. C. SPAULDING.

FAIRMAN & THURSTON, Prop's Elmira Daily Advertiser.

L. A. & C. HAZARD, Prop's Elmira Daily Gazette.

HON. ASHER TYLER.

H. W. BATHBONE, Sup't Elmira Rolling Mills.

HON. JOHN T. BATHBUN.

Very Truly Yours,

JAMES PETRIE,
Overscer.

ELMIRA, N. Y., APRIL 1st, 1873.

TO WHOM IT MAY CONCERN:

This is to certify that this company is, and has been using the pipe known as the "Wyckoff Patent Water Pipe." Taps made last fall in mains laid in the year 1860, (of which there are over seven miles) showed no indications of decay, but on the contrary, were apparently in as good condition as when laid. I consider it the best water pipe in use, and have contracted for about three miles of 6 and 8 inch to be laid this season.

A. DIVEN, Vice President.

At a special meeting of the Board of Water Commissioners of the Borough of Hollidaysburg, Pa., held May 11th, 1868, the following resolution was unanimously adopted:

Resolved, That whereas under a contract of the Borough of Hollidaysburg with Messrs. Woodward and Farrington, that firm delivered to said Borough, during the summer of 1867, about eight miles of "Wyckoff's Patent Imperishable Water Pipe," of various sizes, in construction of the Water Works of said Borough, all of which was then laid down and is now in actual use under various degrees of pressure, the heaviest of which (about a half mile) is one hundred and seventy-five feet. The Board of Water Commissioners of said Borough are unanimously of the opinion that said Pipe answers all the purposes for which it is designed, and in the ordinary requisites of Water Pipe they have found it entirely satisfactory.

Certified from the minutes.

(SEAL)

H. M. BALDRIGE, Sec'y.

HOLLIDAYSBURG, PA., Feb. 14th, 1870.

THOS. B. FARRINGTON, Esq.

DEAR SIR: Yours of the 9th came duly to hand. In answer I would say, in all sincerity and with no disposition to flatter, that our Water Works

here, laid with Wooden Pipe, (Wyckoff's Patent) have rendered entire satisfaction, with a perpendicular pressure of over 170 feet, and as they are now in use nearly three years, I think, after a full and thorough examination made last week, that the entire line of over eleven miles appears better, and in a better condition than when you left or last saw them; and now think, notwithstanding my former opinion, that your Wooden Pipe is better than iron for several reasons. In the first place it costs less, and secondly, costs less to keep in repair, and thirdly, will last as long as iron; and still further, the water is much better, and my conclusions are made from comparing our Works with the works at Johnstown and Altoona; and last, but not least, is the expense of keeping in repair. Our repairs have not cost one-half what either of the others cost for the same time. After carefully examining the accounts for over two and a half years, I find the repairs for that period, to pipes on the entire line of eleven miles, only one hundred and sixty-two dollars and fifty-one cents. I will with pleasure give all the information I can to any one wishing to inspect our works, personally.

Yours, respectfully,
JOHN BRAWLEY, Supt.

The Northwestern Gas and Water Pipe Co., at Bay City, Mich., manufacture the same kind of pipe and have received many flattering testimonials, some of which with their kind permission we subjoin:

SALT LAKE CITY, UTAH, March 23, 1871.

THE NORTHWESTERN GAS AND WATER PIPE CO., CHICAGO, ILL.:

GENTS: In reply to yours of the 5th inst., would say that whilst on the U. P. R. R. I bought of you several lot of your Wooden Pipe, which were laid in localities where the head of pressure was about as follows, viz:

20,000 feet, 4 inch pipe, at Rawlins, Wyoming Territory, 306 feet head.
4,000 " 4 " " at Cheyenne, " " 60 " "
1,500 " 2 " " at Castle Rock, Utah Ter., 90 to 100 " "

Up to the time when I left the Road, (October, 1870,) your pipe had given entire satisfaction—none of it having proved defective. Before buying your Pipe we made careful investigation as to quality, cost as compared with iron and other water pipe, etc., etc., and were satisfied that it would last much longer, be less liable to leakage, and total cost laid much cheaper than any other pipe. We found that the Pipe, laid all complete, cost only about half what iron pipe would cost us. Gen. Dodge, Chief Engineer; Mr. House, then Engineer in charge; and David Martin, then Superintendent of Bridges, Building and Water Department, all gave it the preference over any other water pipe, for reasons of the superior manner in which you manufactured the pipes, their costing much less, and being so easily handled, simple and cheap to lay and put together, their greater durability, etc., etc. In short, after a careful examination, we all decided in favor of your pipe.

Yours Truly,

[Signed]

J. R. NICHOLS,
Late Asst. Supt. U. P. R. R.

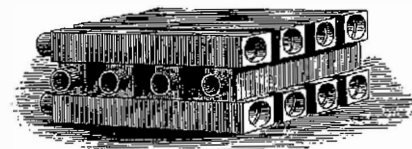
ELITE RAILWAY, DIVISION SUPR'S OFFICE,
ELMIRA, July 10, 1871.

Messrs. HOBBIE, AYRAULT & Co.

GENTS:—For the purpose of carrying water to several of our water stations, we have for the past ten years used a large quantity of your Water Pipe, and it has given good satisfaction.

Respectfully,

H. D. V. FRATT,
Supt. Susquehanna Division.



The first experiment, with a view of ascertaining the strength of this Pipe was made by Daniel Marsh, Esq., Civil Engineer, and Prof. Quimby, of the Rochester University, in March, 1860, at the Iron Works of William Kidd, Esq., in Rochester, as shown by the following certificate:

Strength of Unbanded Wood Pipe.

The result of a series of experiments conducted by Daniel Marsh, Esq., an experienced Engineer, in the presence of other Engineers, scientific gentlemen and prominent citizens, will be seen below:

ROCHESTER, March 20, 1860.

I hereby certify, that, at the request of I. S. Hobbie, Esq., I have recently conducted a variety of experiments upon Wooden Pipe, of different sizes, designed for the conveyance of water, with the results hereinafter stated.

Some of the Pipe used in these trials was made of round logs, and others of square scantling; it was all made of white pine timber. The experiments were made during the last few days, and in the presence of various citizens of Rochester.

The following is a statement of the pressure to which the Pipe was subjected, in which the last column indicates the pressure at which the Pipe burst:

| No of Experiment. | External Diameter. | Internal Diameter. | Length. | PRESSURE APPLIED. | | |
|-------------------|--------------------|--------------------|---------|-------------------|----------------|----------------------|
| | INCHES. | INCHES. | | FEET. | Lbs. per inch. | Water Press. Sust'd. |
| 1 | 3½ sq. | 1½ | 8 | 86 8-10 | 200 | |
| 2 | 3½ sq. | 1½ | 8 | 85 | 195 | 207 |
| 3 | 3½ sq. | 1½ | 8 | 60½ | 140 | |
| 4 | 3½ sq. | 1½ | 8 | 60½ | 140 | |
| 5 | 3½ sq. | 1½ | 8 | 78 1-10 | 180 | 190 |
| 6 | 6 sq. | 2½ | 8 | 90 | 207 | 218 |
| 7 | 6 sq. | 3 | 8 | 75 | 172 | 184 |
| 8 | 6 sq. | 3 | 8 | 82½ | 190 | 195 |
| 9 | 14 D. R'd | 6 | 5 | 82½ | 190 | |
| 10 | 20 D. " | 8 | 4 | 86 8-10 | 200 | |
| 11 | 14 D. " | 6 | 5 | 73½ | 170 | 180 |
| 12 | 6 D. " | 3 | 8 | 65 1-10 | 150 | |
| 13 | 14 D. " | 6 | 5 | 65 1-10 | 150 | |
| 14 | 3½ sq. | 1½ | 8 | 95 1-10 | 210 | 220 |
| 15 | 3½ sq. | 1½ | 8 | 134½ | 310 | |
| 16 | 20 D. R'd | 8 | 5 | 82½ | 190 | 200 |
| 17 | 12 D. " | 4 | 5 | 78½ | 170 | 180 |

In addition to these experiments, I tested a 10-inch Pipe of the above description, banded with iron 1 inch by ½ inch, which sustained a pressure of 400 pounds to the square inch, equal to 940 feet head of water.

DANIEL MARSH, Civil Engineer.

I hereby certify, that I was a witness of the experiments made under the direction of Daniel Marsh, to test the strength of Wooden Pipes, with a view to their use in water works. These experiments were skillfully conducted with carefully constructed and accurate apparatus, and I believe that the results arrived at are in all respects reliable, and furnish data which may be taken as a safe guide in determining the propriety of the use of this material in supplying cities with water, so far as relates to its capacity to resist the pressure to which it may be subjected.

I. F. QUIMBY,

Prof. Mathematics and Nat. Phil., University of Rochester.

The undersigned witnessed the above experiments, and believe the tests to be accurate and reliable:

C. DEWEY, Professor of Natural Sciences, Rochester University.
 C. R. BABBITT, City Surveyor, Rochester.
 F. J. M. CORNELL, late City Surveyor and Civil Engineer.
 G. B. HARRIS, Chief Engineer Fire Department, Rochester.
 SILAS CORNELL, late City Surveyor and Civil Engineer, Rochester.
 S. W. D. MOORE, Mayor of Rochester.
 D. D. T. MOORE, Editor Moore's Rural New Yorker.

| | |
|---------------------|----------------|
| L. B. SWAN, | J. H. TRUAX, |
| JOHNSON I. ROBBINS, | RUFUS KEELER, |
| LINDLEY M. MOORE, | EDWIN PANCOST, |
| A. M. BADGER, | B. M. BAKER. |

The most common size for ordinary use for farmers is 13 in. bore. This is usually made of scantling 3 1/2 inches square, which, as will be seen by reference to experiments Nos. 1, 2, 3, 4, 5, 14 and 15, is sufficiently strong to bear any reasonable head. Experiment No. 14 was made with four sections put together; at 220 feet head, one of the sections gave way in the middle, showing that the joints, as banded, are as strong as any other part. We can furnish many testimonials and references, as to its practical value, but will simply add a few as follows:

I have in use between two and three thousand feet, and consider it the cheapest form of aqueduct that has been introduced to the public, both for capacity and efficiency. If well laid, I think it quite as durable as iron or lead.

Darien, N. Y.

T. C. PETERS.

I am entirely satisfied with the work of the wooden pipe, and cheerfully recommend it to any one desiring a good, cheap water course, which is durable, easily laid down, and will deliver the water at the lower end just as clear and pure as it is at the fountain.

Paris, N. Y.

LEVI BLAKESLEE.

I am satisfied that it is the cheapest, best and most durable water pipe in use.

Pittsford, N. Y.

L. H. SUTHERLAND.

I then put on the entire power of the wheel, which I am satisfied was equal to a head of water of more than three hundred feet on the pipe, and let it run all night without bursting.

Elmira, Sept. 3d, 1859.

ANSON C. ELY.

We have recently examined a piece of wooden pipe about 4 inches square, with a bore of two inches in diameter, which has been buried beneath the surface of the earth, in constant use for forty-two years, and as yet presents no evidence of decay, being apparently as sound as when laid down. It came from the farm of Mr. Ellis Morse, of Eaton, Madison Co., in this State. The pipe was not taken up because of any defect in itself, but because the water failed. It has become the settled conviction of many intelligent and reflecting people, who have given attention to the subject, that wood is superior as a material for water pipe to iron, lead or cement.—*Rochester Union*.

The recent discovery of wooden water pipe some six or eight feet below the pavement on State street, by men employed in constructing a sewer, has given rise to a conjecture as to their origin. They were common pump logs, and probably laid down about the year 1816, to carry water from a spring in the bluff, near Washington street. These wooden pipes are perfectly sound at the end of more than forty years, and have had no water in them for more than thirty. If the iron pipes about to be put down there to carry water from the canal to the reservoir last as long as these, those who use them will be fortunate.—*Rochester Democrat*.

In excavating for the sewer in State street, the workmen came upon a series of pump logs in a perfect state of preservation. The length of time they had lain there passed the memory of the "oldest inhabitant," and could not be less than forty years. The question of durability is eloquently discussed and conclusively decided in their favor by these wooden pipes themselves, and they again "re-visit the glimpses of the moon" after an in-humation of forty years.—*Rochester Express*.

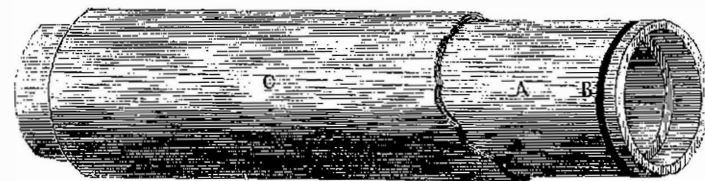
There is much strong and reliable testimony in favor of wood for water pipe, and if properly made of good material, and well and deeply laid, there is little doubt it will prove superior to iron, lead or cement.—*Moore's Rural New Yorker*.

We have in our office a piece of wooden pipe, which is said to have been in use 42 years. So perfect is the preservation of the piece that the splintery roughness, produced by the saw when it was made, remains entirely undisturbed. It is really a curiosity of great interest. The evidence which it gives of the value of wooden pipe cannot be disputed.—*Elmira Advertiser*.

There is another advantage besides cheapness in wooden pipes. It is the ease with which they are tapped whenever and wherever a branch is to be taken off, and they are easily repaired. We hope that not only villages, but farmers, wherever a spring exists about the homestead, will avail themselves of its benefits. In case of the sale of the farm, it would pay ten times its cost, and it would be worth still more to the owner as it would pay its cost every year.—*New York Tribune.*

The piles under London bridge have been driven 500 years, and on examining them in 1845, they were found to be but little decayed. They are principally Elm. Old Savory Place, in the city of London, was built 650 years ago, and the wooden pipes, consisting of oak, elm, beech and chestnut, were found, upon recent examination, to be perfectly sound. Of the durability of timber in a wet state, the piles of the bridge built by the Emperor Trajan, over the Danube, affords a striking example. One of these piles was taken up and found to be petrified to the depth of three-quarters of an inch, but the rest of the wood was not different from its former state, though it had been driven 1690 years.—*Scientific American.*

GAS PIPE.



This cut needs little explanation. It is made like our water pipe, of thick, sound pine timber, in sections 8 feet long, banded at the ends and connected by a tenon joint, which only needs driving together with hot pitch or paint to make it perfectly tight. It is coated both on the inside and outside with preparations made specially for each. That on the inside is applied very hot, and with pressure, so that every crack or crevice is perfectly filled, and, when cool, is smooth like glass; and judging from the experience of several years, we think is more nearly indestructible than any other kind of pipe made. The following are among the reasons why we think it is the best:

1. When properly laid, it is *perfectly tight.*
2. It is the *easiest laid.*
3. It is not liable to get *out of order.*
4. It is more easily *tapped.*
5. It will not *expand and contract* like iron.
6. Wood being a *non-conductor*, it need not be laid so deep in the ground.
7. It will prevent *condensation.*
8. It is the *cheapest.*
9. It is nearly or quite *indestructible.*
10. Being very light, it is easily transported and handled.

We give below a few of the many testimonials which have been received from those who have used this pipe:

OFFICE OF GAS COMPANY,
Corning, N. Y., Sept. 16, 1868.

TO WHOM IT MAY CONCERN:

We have used, for over six years, about 400 feet of the wooden gas pipe of Wyckoff's Patent, and have had no trouble of any kind with it. We believe it will last as long as iron pipe. We are now laying some thousands of feet of the same.

C. S. COLE, Secretary.

CORNING, N. Y., June 22d, 1870.

In regard to wooden pipe, we consider it *superior* to iron pipe in every particular. Can we say more?

Respectfully,

C. S. COLE, Secretary.

OFFICE OF CORNING GAS CO.
CORNING, N. Y., July 17, '71.

Messrs. HOBBIE, AYRAULT & Co.

Dear Sirs:—We have several thousand feet of Wooden Gas Pipe which has been in use as street mains for over nine years, and we have never had any trouble with it. All our extensions of mains for several years past, have been made with this kind of pipe, and our experience with it leads us to prefer it to iron.

Respectfully Yours,

CORNING GAS CO.

CORNING, N. Y., March 29, '73.

Messrs HOBBIE, AYRAULT & Co.

Dear Sirs:—During the season of 1861 we put in our works a number of thousand feet of what is known as "The Wyckoff Patent Gas Pipe," and have since that time made our extensions with the same pipe. Since the first pipe was laid they have often been examined by parties desiring to look into the durability of wood pipe as a gas conductor, and have in every case found it to be perfect in every respect. We are heartily in favor of this pipe for that purpose, and expect in the future to use it exclusively. Any other information desired by any one on the subject we will gladly give.

Respectfully,

C. S. COLE, Sec. Gas Co.

OFFICE OF TOWANDA GAS AND WATER CO., March 5, '73.

TO WHOM IT MAY CONCERN:

We are using the wood gas main manufactured by Hobbie, Ayrault & Co. We have both iron and wood mains, we prefer the wood. Loss by leakage and condensation is less with the wood. So far our experience justifies us in recommending companies to use wood mains. We shall continue to do so as fast as we need to extend ours. The largest size wood main we use is 4 inch. We exercise care in laying it and are well satisfied. Any further information needed we will cheerfully give.

Resp. Yours,

E. T. ELLIOT, Prest.

FREEMONT, PA., Feb. 22, '73.

This is to certify that we are using Hobbie, Ayrault & Co's wooden pipe at our Gas Works, and find them to give us satisfaction as a conductor for gas, as we have tested them and have no difficulty, and do not intend to use any other. Our mains are all wood. We have ordered some more to complete our works.

J. A. McCULLOCK, Prest.

OFFICE OF CORRY GAS AND WATER CO.
CORRY, PENN., Feb. 5, 1873.

TO WHOM IT MAY CONCERN:

This is to certify that we have within the past year laid here and in Warren, Penn., over 4 miles of Messrs. Hobbie, Ayrault & Co's Wood Gas Pipe, and we are very much pleased with it so far. We find our leakage less than in same amount of iron mains. The first cost being so much less than iron, and the freight and cost of laying being also materially less, and our experience thus far being so favorable that we expect hereafter to make our extensions exclusively of this pipe both here and in Warren.

Very Respectfully,

KENT BROS.

OFFICE OF THE PORTSMOUTH GAS LIGHT CO.,
Portsmouth, O., April 15, 1870.

So far we are well pleased with the Wyckoff pipe. A few days since we ordered 4,000 feet more of it.

Respectfully,

L. C. ROBINSON, Prest.

ELINT, Mich., Sep., 1870.

I have just laid 1,870 feet of the 3-inch Wyckoff Gas Pipe in *twelve hours*. Have tested it, and do not find a single leak. It is the best pipe I ever saw.

Yours, Truly,

C. J. HERRING.

OFFICE OF GAS LIGHT AND COAL CO.,
Painesville, O., March 19, 1869.

THOMAS B. FARRINGTON, Esq., Chicago, Ill.:

Dear Sir:—In reply to yours of the 14th inst., I would say that we have laid over two thousand feet of the Wyckoff Patent Wood Gas Pipe, and as yet have no fault to find with it. It has been laid two years, and does not leak. Is easily and cheaply laid, and if it proves to be durable in the ground, (which time alone can determine,) I should prefer it to iron pipe.

Respectfully yours,

C. D. ADAMS, Sec'y.

ALLIANCE, O., March 20, 1869.

TO THE NORTHWESTERN GAS AND WATER PIPE MANUFACTURING COMPANY,
Chicago, Ill.:

Dear Sir:—I received your note, and in reply would say that our "Co." put in about one mile of Street Main of Wyckoff's Patent, and it has answered very well, and we are satisfied it is superior as a street main to the cast iron. In any future extensions we intend using it.

Yours, truly,

J. J. PARKER, Pres't A. C. L. Co.

ELMIRA, N. Y., July 13, 1866.

Messrs. WYCKOFF BROTHERS & Co.:

Dear Sirs:—A quantity of your Gas Pipe, known as "Wyckoff's Patent Wooden Gas Pipe," was laid on the Main Street Bridge in this city, some three years and a half ago, and it gives us pleasure to certify that we have not had the slightest trouble therefrom since the pipe was laid. That although said pipe has at all times been exposed to the weather and elements, yet it has never failed to answer fully the purpose for which it is used. We

make this statement with more pleasure from the fact that heretofore when the iron pipe was used in the place of this, we were constantly annoyed by the leakage of gas. We can therefore heartily recommend your pipe to all concerned.

EDWIN ELDRIDGE, Pres't Main Street Bridge.
JESSIE L. COOLEY, Sec'y Elmira Gas Co.
C. PRESWICK, firm of Preswick & Dudley.
E. H. COOK, firm of E. H. Cook & Co.
F. H. ATKINSON, Ex-Supervisor.
J. H. BARNEY, firm of J. H. Barney & Co.
M. DYER.

NEW YORK, Jan. 11, 1868.

Messrs. WYCKOFF BROTHERS & Co.:

Gents:—Your letter came safely to hand. In reply I would say that your Wooden Gas Pipe has answered my expectations, and done all you claimed for it in your circular. I have put down the fifteen hundred feet I bought of you last summer, and expect now to lay about ten thousand feet—different sizes—of the same, next summer. My Engineer tells me he has no trouble with it as regards leakage. He says that if your pipe is well prepared, and well laid, that it will answer every purpose for Gas Pipes, and save a large percentage of leakage we now have from our iron pipes.

Very respectfully,

C. R. SQUIRE,
Proprietor Plainfield, N. J., Gas Co.

LAWRENCE GAS WORKS,
LAWRENCE, KAN., March 28th, 1871.

THE NORTHWESTERN GAS AND WATER PIPE CO.:

GENTLEMEN: In regard to a statement of the quality of your Pipe we have laid and how we like it, I will say that we have over four miles of your Pipe now laid, and are well pleased with it in every respect. We have 2, 3, 4, 6 and 8 inch Pipe. There is comparatively little condensation in these pipes, as compared with iron pipes, and I will add that we have 800 feet of 4 inch pipe on the bridge across the Kansas River, and that we were not troubled in the least by the intensely cold weather of last winter, which I am satisfied could not have been said if iron pipe had been in the same place. I cheerfully recommend the pipe if it is driven with hot pitch.

Respectfully,

GEO. A. FARREL, Supt.

CHAMPAIGN AND URBANA G. L. & C. Co.,
CHAMPAIGN, ILL., April 17, 1871.

THE NORTHWESTERN GAS AND WATER PIPE CO.:

GENTLEMEN:—In answer to yours of the 11th inst., I would say, I have at Centralia, Ill., something over seven thousand feet of Wood Gas Pipe, which has been in use for over one year. It gives entire satisfaction. I have less trouble in consequence of leakage and condensation than from any pipe I have used. I put down in Urbana and Champaign last October, about one-half mile of the same, and it is giving the same satisfactory results. My preference for making all extensions is for the wood pipe.

Yours, truly,

T. G. LAMSDEN,
Supt Centralia, Urbana and Champaign Gas Works.

Industrial Exposition.

CINCINNATI, OHIO., OCT., 1870.

REPORT OF THE COMMITTEE ON GAS & WATER PIPE.

[No. 1,235.]

WOODEN GAS AND WATER PIPE.

This Pipe is constructed after the

WYCKOFF PATENT.

It is bound with Iron, is coated with Asphaltum and Tar on the outside, and, in case of the Gas Pipe, inside also. In this way are secured STRENGTH, DURABILITY AND CHEAPNESS. It is more than a ft substitute for Iron for conveying Water and Gas.

We heartily commend this article to the attention of City Authorities, Gas Companies, Railroad Companies, &c., &c.

We award it the FIRST DEGREE OF MERIT.
[Signed]

JOHN W. DALE,
JAMES C. HAVEN,
THEOPHILUS WILSON. } Com.

Hear what one of the foremost Hydraulic Engineers in the United States, the Hon. W. J. McALPINE, says in his report to the Water Commissioners of Norfolk, Va., Feb., 1871.

"Timber of good quality, that is taken from uninjured trees, yet in a growing state, will not decay in many centuries, if wholly submerged and maintained so. Of course we are all aware that timber alternately exposed to water or moisture, and dryness, will decay rapidly."

We also manufacture the best quality of CHAIN PUMP TUBING.

We wish it distinctly understood that we warrant our pipe to be as represented. If any company or party now using any other kind of pipe will send a sample order, we will, if desired, attend to the laying of the same, and if not as represented and perfectly satisfactory, we will remove it and no charge will be made.

We deliver all goods at our manufactories unless otherwise specially arranged.

Orders amounting to Twenty Dollars or less, must in all cases be accompanied by *Cash*. For larger sums, when satisfactory reference is given, we will fill the order, and send shipping receipt with our bill, and draw at one day's sight, through such Bank or Express as may be designated in the order.

We have sole right to make and sell this Pipe and Machinery in the following States: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, District of Columbia, Virginia and West Virginia, and by arrangement we can sell our pipe in any part of the United States.

HOBBIE, AYRAULT & CO.

