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WATER SUPPLY
—AND—
Fire Protection
FOR CITIES AND VILLAGES.

OFFICE OF HOLLY MAN'FG. Co., }
LOCKPORT, N. Y., March, 1867. }

The year 1866 has been signalized by numerous and very destructive conflagrations. Villages and cities have been laid waste—multitudes of individuals have been thereby pecuniarily ruined—and Insurance Companies, hitherto safe to the insured and profitable to the stockholders, have been seriously crippled or made hopelessly bankrupt. Underwriters seek a partial remedy for this state of things by increased and onerous rates of insurance upon property, while the real and urgent want of the time is increased protection against these disastrous conflagrations. Happily this imperative want is opportunely met by the new, efficient and well-nigh perfect STATIONARY WATER WORKS, constructed by the Holly Manufacturing Company, at their new and extensive machine shop, at Lockport, New York. The machinery, in its new features and combinations, is covered by patents issued to BIRDSILL HOLLY, and is destined to revolutionize and dispense with the whole system of *endeavoring* to extinguish fires by the expensive and lamentably inefficient plan of Fire Engines, &c. Under the immediate supervision of Mr. HOLLY, whose inventive and mechanical genius has won for him an enviable and growing reputation, these water works have been erected in the cities of Lockport and Auburn, and in their working results have more than realized the expectations of the communities who enjoy their benefits and protection. The

LOCKPORT WATER WORKS

were constructed in 1863, under a contract with the City Corporation. The wheel house is a circular brick building located

about 20 feet below the State Race and is 20 feet in diameter. In the lower story is placed one of B. HOLLY'S Patent improved Turbine Water Wheel, five feet in diameter and of 140 horse-power, under a head of 19 feet. This wheel drives one of Mr. Holly's patent Rotary Power Fire Pumps, No. 7. which is capable of throwing with ease 1500 gallons of water per minute. A 10-inch main leads up an elevation of about 40 feet to Main street, a distance of 30 rods, and the water is thence distributed through smaller pipes of 8, 6 and 4 inches, through the streets protected by the Works. There have been about 2,500 feet of pipe laid, and 30 hydrants set. the highest of them at an elevation of 72 feet above the stationary power. Aside from the compactness and efficiency of this machinery, an ingenious invention of Mr. Holly, of indispensable value, secures a uniform pressure of the water in the pipes. This Pressure Gauge or Register controls the water wheel gate, so as to give just the required pressure from 20 to 200 pounds, AND WHICH MAKES THE WORKS EQUIVALENT TO A RESERVOIR THREE HUNDRED FEET HIGH. The agreement of the Holly Company, in the contract for the erection of the works, stipulated that from a hydrant set at a point 50 feet above the Pump, a stream of water should be thrown through 100 feet of hose 100 feet high. Upon the trial the stream was thrown not only over the test pole placed for that purpose, but full 75 feet higher, as near as could be estimated, *when the hose burst!* Next two streams were thrown at the same time about the same height, *when the hose again gave way.* Then four streams at one time were thrown over the test pole. Next, in the language of the then Mayor, DAVID M. MATHER, Esq., who with others of the City Corporation was officially present to decide upon the acceptance of the works, "the pump threw at the same time from nine hydrants a stream from each, through nozzles, from $\frac{7}{8}$ to 2 inches in diameter, over the roofs of any of our buildings." The works were promptly accepted by the city, *the trial being rather a test of the hose than of the power of the machinery.* The Works have been in successful operation ever since that time—have reduced the rate of insurance nearly 50 per cent. within the territory they protect—have never failed to drown out within the building wherein it originated every fire that has broken out within the

hydrant district, and have paid many times their cost in the reduction of insurance rates and the saving of property which would otherwise have been destroyed. As to the value of these Water Works, the Mayor, Mr. Mather, in a published statement says: "One of the advantages of this machinery is the Regulator connected with it, which regulates the power in proportion to the amount of water discharged *without attendance.* I think it one of the most beneficent inventions in this country. I wish all places of importance had the same system of Water Works. We should then hear of less damage by fires." Under the clamorous demand of property holders the Common Council are about to lay mains and bring a much larger portion of the city within the protection which these Works afford.

The obvious advantages and perfect success of the new Water Works at Lockport, attracted the attention of the Auburn Water Works Company, organized to furnish that city with water for culinary purposes and also for protection against fires. After repeated visits to Lockport, and minute and careful examinations of the Works in operation there, that Company contracted with the Holly Manufacturing Company to construct the

AUBURN WATER WORKS,

Modeled after those at Lockport, but with additional capacity and power to meet the increased demand upon them. The Works were duly constructed and accepted, and have successfully met every requirement both for the supply of water for daily use throughout the city and also as a perfect safeguard from conflagrations. The supply of water is drawn from the outlet of the Owasco lake, about two miles from the city. At this point a wheel house 30 by 35 feet has been erected, two stories high. The upper story is arranged for the family residence of the Superintendent in charge of the machinery. In the lower story is placed three of Mr. Holly's celebrated Turbine Water Wheels—one of 60 and two of 100 horse power—under a head of 15 feet. Each of the large wheels drives one of Holly's Rotary Elliptical Power Pumps, capable of discharging 1,000,000 gallons of water every 24 hours. The smaller Pump has a capacity of about 425,000 gallons every 24 hours. The design of three sets of Wheels and Pumps is, to vary the supply of water according to

the wants of the city—running one, two or three of them, as needed. The wheels are so arranged as to apply the power of either wheel to either pump, or the power of one wheel to two pumps, or the power of two wheels to one pump. The water is forced through 12-inch pipe into the main street of the city and then through reduced sizes of 8, 6, 4 and 3 inches, is distributed to different localities. The farthest hydrant is fully three miles from the Wheel House. The flow of water for the daily supply of the city is secured with perfect regularity and precision. In case of fire, by combinations of safety valves and a system of telegraphing by water, ingeniously contrived by Mr. Holly, any additional amount can be almost instantly thrown to any required point in the city. By simply opening any one of the hydrants the pressure is reduced in the regulating cylinder at the Wheel House—this reduction depresses the piston—starts the regulator which hoists one or more of the gates—rings a bell in the Superintendent's sleeping apartment, and promptly calls him to his duty. *Upon repeated tests the opening of a hydrant in the city has rung the alarm bell in the Superintendent's room at the Wheel House, from two to three miles distant.* WITHIN THREE SECONDS, as near as it was possible to determine by watches set and compared. As soon as a fire is extinguished the closing of one or more hydrants will so act upon the same Regulator, safety valves, piston and cylinder as to close the gates again, and bring the flow of water in the pipes to the same pressure required for the ordinary supply of the city. This water telegraph of Mr. Holly's will operate not only three miles, up hill and down, as at Auburn, but for longer distances, well nigh as instantaneously as the Atlantic Cable registers a message from one extremity to the other. With this machinery even Oil Refineries will cease to be classed by Underwriters as extra hazardous. A fire broke out in one of them at Auburn on the 9th of February, 1867, with the following result, as stated by one of the newspapers of that city in its issue of the next day:

“The Engine and Retort House of the extensive Oil Refinery of Messrs. Burgess & Bros., of this city, took fire about 7 o'clock last evening. We are happy to state that the progress of the fire was arrested in the building in which it originated, containing the Engines, Boilers, and Machinery. The street hydrants of the

Water Works Company are about 1,500 feet from the Refinery. A sufficient quantity of hose was promptly connected and a continuous stream of water was poured upon the storehouses, out-buildings, offices, &c. In the storehouse was a large quantity of Oil, Naptha, &c., which was all saved. The engine, boilers and machinery were also uninjured, and will only interrupt the business of Messrs. Burgess & Bros., a few days. We think no one present who saw the operations of our Water Works Company upon this fire, at a distance of three miles from the Works and 1,500 feet of hose attached, and then a sufficient power to throw water over the building with great force, will doubt its efficiency in case of fire, and our city and citizens may congratulate themselves on the result of this trial. And we also think the public are largely indebted to Mr. Holly, of Lockport, who invented and also constructed the machinery for this Company.”

The above descriptions and statements are deemed sufficient to put other communities upon the inquiry for similar works. An examination of them either at Lockport or Auburn, will demonstrate their great value and the urgent necessity of promptly securing them in other localities, equally or in even greater need of them. There are thousands of villages and cities, both large and small, which might advantageously introduce them. It is not a question whether the expense can be afforded, but rather whether the neglect to procure them can be afforded. As in the case of Lockport and Auburn reductions in the rates of Insurance will pay and more than pay their original cost and the expense of care and repairs from year to year. Property saved in a single year by their prompt extinguishment of fires may also be worth ten fold their cost. Most towns, of any considerable size, have plenty of water in or near them and either water or steam power for manufacturing purposes. Wherever this is the case the Holly Water Works will make that water available in furnishing the best fire protection in the world, and also yield full supply for the daily wants of the community. In many cases where a *head* of water is not to be had from which to obtain the requisite power but where (without *head*) plenty of water is attainable, steam power can be usually used with the same system. The question of a bountiful supply of water for house-

hold use and for sprinkling streets, watering lawns, &c., as well as fire protection, is already attracting great attention. Not only the convenience but the health of communities is involved in it. The expense of costly reservoirs and appurtenances has hitherto been an almost insurmountable objection, which the Holly system obviates.

The Holly Manufacturing Company was organized in 1859. Its increased business necessitated the erection in 1865 of a new machine shop 245 by 35 feet, and 4 stories high, and foundry 90 by 70 feet. This large addition of manufacturing facilities has been made especially with reference to meeting the increased demands for Water Wheels, Power Pumps and work of like character. While Insurance Companies, staggering under their fearful losses, are endeavoring to protect themselves by highly increased rates of insurance, property holders are wisely turning their attention to the propriety of protecting themselves against fire by the procurement of Holly's Elliptical Rotary Fire Pumps.

The Company offer to contract for the erection of water works similar to those at Lockport or Auburn, or enlarged to the demands of larger cities. An examination of the works already erected is recommended.

Holly's Pumps, from No. 1 to 12, for manufacturing or Fire protection, kept on hand or furnished on very short notice.

Holly's Water Wheel, not surpassed by any, also supplied with the utmost despatch.

Catalogues and Price Lists furnished on application.

The following certificates, it will be seen, fully corroborate the above statements:

MAYOR'S OFFICE,
Lockport, N. Y., March 20, 1867.

The Water Works, constructed by the Holly Manufacturing Company, for the protection of the business part of this city against fire, have more than fulfilled the promise of the inventor, Mr. HOLLY, and more than realized the most sanguine expectations of our citizens. The works are of great strength and power, and are marvellously well adapted to extinguish fires promptly and surely. Although designed for only the central and compact part of our city, it is found they have capacity to protect a much larger district, and hence an extension of the pipes in accordance

with the wishes of property holders will be made at the earliest practicable moment. Cities and villages in need of a supply of water and protection against the calamities of fire, may safely trust the ingenuity and skill of Mr. HOLLY, for the accomplishment of these increasingly important results.

B. CARPENTER, Mayor.

FIRE DEPARTMENT,
CHIEF ENGINEER'S OFFICE,
Lockport, March 21, 1867.

As the head of the Fire Department of this city, I have had repeated opportunities to test the great value of the Water Works constructed in this city by the Holly Manufacturing Company. In the celerity with which water can be brought to bear upon a fire—in the steady, powerful and untiring flow—in the quiet application of the water just where it is wanted without any of the noise, confusion and smoke attendant upon working hand and steam engines, and in the certainty of throwing water in extreme cold weather through these under-ground pipes and comparatively short stretches of hose when increased lengths of hose through engines would inevitably freeze; in all these and other respects these works are incomparably superior to any arrangements for the suppression of fires I have ever seen.

I concur with MAYOR CARPENTER in recommending these works to other communities, who desire an economical, judicious and advantageous use of water either for the daily use of cities or the extinguishment of fires.

H. F. CADY, Chief Engineer.

Holly Manufacturing Co.

T. T. FLAGLER, Pres't }
B. HOLLY, Mec'l Supt } LOCKPORT, N. Y. { J. W. BOWEN, Sec'y
J. K. McDONALD, Treas

MANUFACTURERS OF

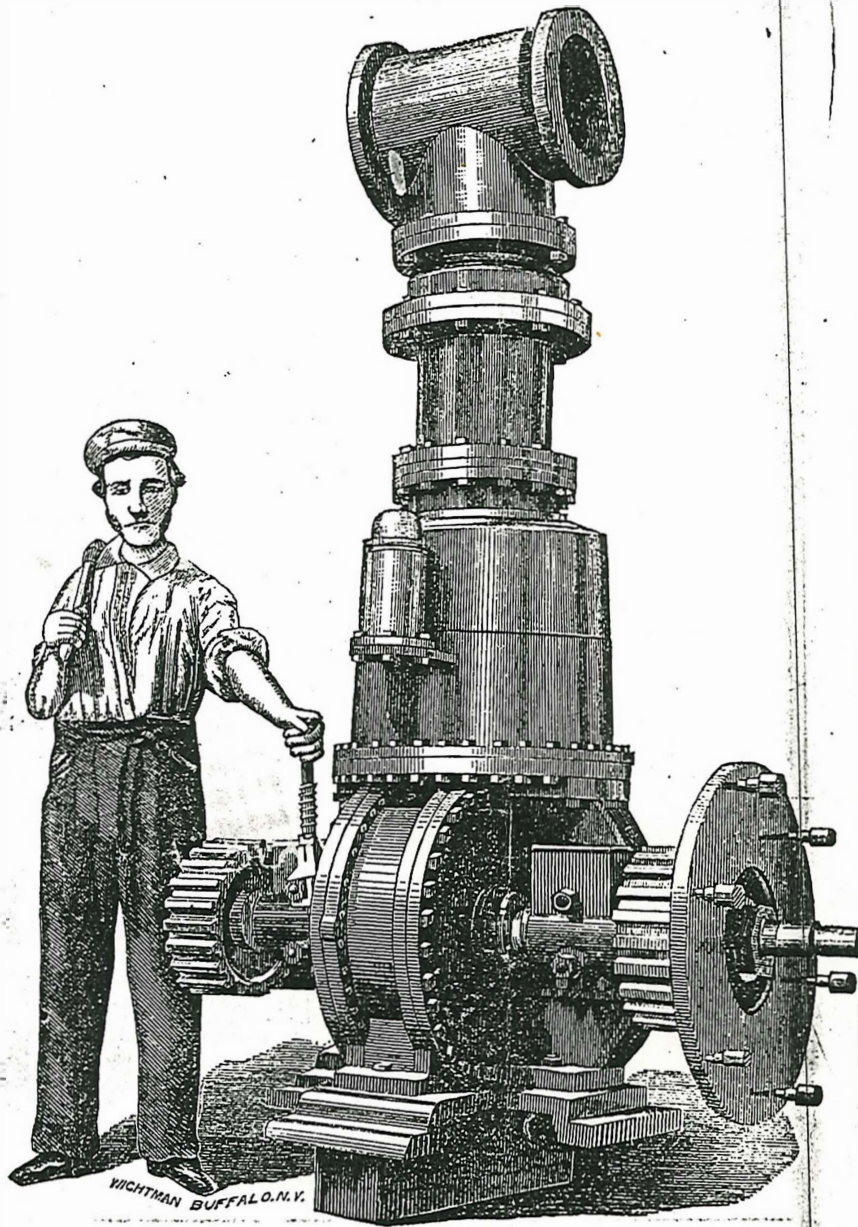
LIFT AND FORCE PUMPS,

ELLIPTICAL ROTARY PUMPS. TURBINE WATER WHEELS. STEAM ENGINES. PORTABLE AND STATIONARY. BOTH ROTARY AND PISTON. AIR AND GAS PUMPS. AERATED BREAD MACHINERY. WRECKING AND MARINE PUMPS. ALSO

Lift and Force Pumps for Hand, in all varieties. Thimble Skeins. Grindstone Rollers. Barn Door Hangers and Rollers, and cast iron Barn Door Rail. Amalgam Bells, Sinks, Sewer and Bell Traps, Well Wheels, Chain Pump Reels, Blacksmiths' Drills, Coach Screws, Cast and Wrought Iron Pipe, Cast and Wrought Iron Bench Screws, Cheese Press Screws, Stair Plates, Revolving Clothes Irons, Bedstead Fasteners, Coal Shovels and Tongas, Hot Air Furnaces and Registers, Gas Pipe Tongas, Pulley Blocks, Sad Irons and Sad Iron Heaters, Tailors' Geese, &c., &c., &c.

No. 7, Rotary Fire and Water Works Pump,

NOW IN USE AT LOCKPORT AND AUBURN.



ADDITIONAL AND IMPORTANT CERTIFICATE.

OFFICE OF THE
AUBURN WATER WORKS COMPANY,
AUBURN, N. Y., March 29, 1867. }

Holly Manufacturing Co., Lockport, N. Y.:

GENTS,—Our Water Works, constructed with a view of furnishing an abundant supply of water, not only for general city purposes, but also with the design (if practicable) of providing ample protection against fires, have been in successful operation since November, 1865.

The Water Engines and machinery manufactured and put up for us by your Company, as well as the novel plan suggested by your Mr. Holly—dispensing with Reservoirs and Stand-pipes—have fully satisfied our expectations, and enabled us to secure the objects contemplated.

We have now about eight miles of mains laid in the city, of 12, 10, 8, 6 and 4 inches diameter, to which are attached some eighty Fire Hydrants, and at all times a constant and abundant supply of water has been furnished.

For Fire purposes we have no need of fire engines if there is a sufficient supply of hose to reach from the nearest hydrant. The pumps are of sufficient power to force the water directly from the hydrants, through any reasonable length of hose, far above the highest buildings, and without any perceptible difference whether one or a dozen streams are thrown at the same time.

As a protection against fires we regard the plan adopted as especially invaluable, being not only less expensive but of greater efficiency than that ordinarily obtained by reservoirs and the force of gravity.

The hope originally entertained has not only been realized but our confidence in the permanent success of the plan and works, has been fully established.

Respectfully, Yours,

E. H. AVERY, Pres't. Auburn Water Works Co.

JNO. S. FOWLER, Mayor City of Auburn.

D. H. SCHOONMAKER, Chief Eng'r City Auburn.