

The character of the masonry is rock range work laid in hydraulic cement. Each pier contains on an average 420 perches of dressed stone; the width of the piers is 6 feet on top and 10 feet at the springing line of the arches, measured perpendicularly to the general direction of the pier. The foundation is protected by rip-rap of loose stone, which becomes continually more solid by the action of freshets, the effect of which is to deposit sand and gravel in the interstices. Each pier is furnished with an ice-breaker, the slope of which is 45° . The ice-breakers are built with the same kind of stone work as the piers themselves; heavy oak timbers are anchored across the face of each, to which the oak facing timbers are securely spiked.

The first pier was covered with bars of cast-iron placed longitudinally, and about 12 inches apart, the spaces between being filled with concrete. An unexpected period of cold weather, immediately after the concrete was laid, caused it to freeze before setting, and a freshet at the same time washed out a portion at the lower end; so that the result was not as satisfactory as under other circumstances it would have been. This mode of facing an ice-breaker is economical, and secure against fire, which might be communicated to the bridge by coals falling upon it, blown off the floor by the force of wind. Ten of the piers are covered with long oak timbers 10×10 , laid so as to leave openings between of one inch, which, when the timber has become completely dry, will be filled with cement as security against fire. The ice-breakers of the eleven remaining piers are covered with bars of flat iron secured as follows: holes were punched in the iron bars at intervals of $2\frac{1}{2}$ feet, sufficiently large to receive bolts $\frac{3}{4}$ inch diameter. The bolts were 6 inches long, split for half their length to receive a wedge. Holes were drilled in the stones at proper intervals to receive the bolts. These holes were filled with ordinary mortar of sand and cement, poured in before driving the bolts. This mode appears to answer perfectly; it is much less expensive than lead and more convenient of application.

The foundations of the 22 piers were commenced and carried above water in 16 weeks; but after the eighth pier was