

in the river, at the foot of Stark street. This altitude brings the bridge seven feet above the highest point reached by the river of which there is any record. This pier is the rest for the west arm of the draw.

Pier No. 2 is the one on which will rest the entire weight of the draw. It has a foundation similar to the one described above, though larger, as greater strength is required. It is octagonal in shape, the outer portions being built of cut stone and the interior filled with concrete. The latter material is as hard as the stone itself and will last as long. This pier is twenty-four feet in diameter, and rises twenty-five feet from the foundation. Pier No. 3 has been constructed; in every essential respect, similar to No. 1, and the dimensions are the same. The foundation of pier No. 4 is similar to that of the first. From it rise two large iron tubular piers, each six feet in diameter, and filled with concrete. Both tubes are securely anchored to the foundation by a cluster of piles, which extend upward into the concrete some five or six feet. Heavy framework fills the space between the tubes. Piers Nos. 5 and 6 are duplicates of No. 4. Measuring from the extreme low stage of the river, the piers stand in the following depths of water: No. 1, sixty feet; No. 2, fifty-five feet; No. 3, forty feet; No. 4, thirteen feet; No. 5, between five and six feet; No. 6, five feet.

On the west end, the approach of the bridge is one hundred and sixty feet in length, reaching from the east line of Front street to the pier situated at the wharf line. The first span is one hundred and sixty feet in length, and consists of eight panels and the supporting timbers, which are twenty-six feet high. The full length of the draw span is three hundred and eight feet. This span is twenty-six feet high at each end and forty feet in the center. The huge struc-

ture consists of twenty-six panels, and is of the style known as the "Warren Girder." At the lowest stage of water, the exact distance between the masonry on each side of the center pier is one hundred and thirty-eight feet; at the highest recorded stage the distance is one hundred and thirty-five feet. On the large octagonal pier will be placed the turn-table, and on this the draw will be accurately balanced. The turn-table consists of thirty-two cast iron wheels, each fifteen inches in diameter. These wheels are cone-shaped and travel between two tracks — above and below. The draw can make a complete revolution, either to the right or left, and has been so geared that it can be operated by either steam or hand. The three spans east of the draw are each two hundred and sixty feet in length, and each consists of twelve panels. The ends are thirty-six feet high, and the centers forty-three feet. The roadway, is twenty feet in the clear, flanked on each side by a walk five feet wide for pedestrians. There will be ample room for laying two tracks for a street railway, without interfering with the travel of other vehicles. The floor beams, joists and flooring of the bridge are of wood, fastened securely together by a complicated system of iron bolts, rods and supports. On the east side the approach is two hundred and thirty-five feet long, extending from the last span to a junction with Water street, East Portland. The total length of the bridge, including approaches, is one thousand, six hundred and fifty feet. Without a doubt, it is the longest and most imposing structure of the kind west of the Rocky mountains. All the piers are well protected from the current and masses of driftwood. The pivotal pier is well shielded by the draw rest, and on the up-stream sides of the tubular piers clusters of "dolphin" piles are driven. The draw rest consists of a