

cribs were finally lost. Early in the spring of 1867, work was begun upon a timber crib, which was to form the permanent foundation of the upper draw rest, and serve as an anchorage and water deadener while putting in the foundation of the pier. This crib was built upon the sand bar on the north side of the river, and launched by the rising water of the April flood ; the building was continued after it was fairly afloat, and it was poled out into deeper water, from time to time, to prevent grounding. One Sunday morning, while this work was still in progress, a steamboat going up the river, in hugging the shore to avoid the strong current of the channel, fouled against one of the lines, which breaking released the crib. The yawl crew, who were watching for any such accidents, at once boarded it, and, being unable to make fast to anything, went down the river with it. As soon as the crew of the steamboat could be collected and steam raised, she was sent in pursuit, but having lost an hour in the start she did not overtake the crib till it had drifted 22 miles down stream. Two days having been spent in a fruitless attempt to tow the crib against the current, it was taken apart and the timbers brought up on barges.

The caisson in which the pier was built, was built in the summer of the same year on the south bank of the river, in front of the Company's machine shop. Its form was that of a round tub 18 feet high and 40 feet in diameter at the base, the sides sloping inwards with a batter of 1 in 16. It was made of four-inch oak staves, six inches wide, bound with flat iron hoops, and strengthened by timber rings on the inside.\* The bed rock at the site of this pier is found at an average elevation of 80, with a slope towards the north of nearly three feet in the diameter of the tub. When the first soundings were taken this rock was found overlaid with eight feet of sand, to secure an easy penetration through which, the caisson was provided with an iron cutting edge, formed of pieces of three-eighth inch boiler plate riveted together and fastened to cast-iron brackets, which were bolted to the lower set of internal rings. These plates were trimmed off so as to make a difference of 18 inches in the heights of the opposite sides of the caisson, thus partially balancing the slope of the work. The tub was provided with a false bottom, built in radial sections, suspended at the centre from a light truss overhead, secured by inclined

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\* This caisson is shown on Plate III.