

by a solid stratum. Three of the pits on the New York side are sunk to a depth of 25 feet. The fourth one south east is only 18 ft., where the rock proved very solid, and without any fissures. This shaft was not sunk deeper on account of the great influx of water and difficulty of bailing. In consequence the lowest link of that chain was omitted, and a greater hold given to the rest by reverse arches, thrown against the knuckles, also by the introduction of crossbars. With the exception of this shaft, all the others, on both sides of the river, have been sunk to an equal depth, 54 ft. below the Rail Road track. The surface of the rock on the Canada side being 10 ft. higher than on the New York side, the depth of shafts was increased that much, and the height of the masonry above reduced in proportion. Each shaft has a cross section of 3×7 ft., enlarged at the bottom to a chamber of 8 ft. square. The anchor chains are composed of 9 links, all of which are 7 ft. long, except the uppermost or last one, which is 10 ft. The first or lowest link is composed of 7 bars, 7×1.4 inches, and is secured to a cast-iron anchor plate by a pin of $3\frac{1}{2}$ inches diameter, ground upon its seat. The next link is composed of 6 bars of the same size, and 2 half bars on the outside. The aggregate section of each is 69 superficial inches. From the fourth link on, the chain curves, and the section is gradually increased to 93 superficial inches. Four of these chains were manufactured of the best quality of Pennsylvania charcoal blooms by EVERSON & PRESTON, of Pittsburgh, the other four were made at Napannock, Ulster Co., N. Y., by Mr. FREDERICK BANGE. They were manufactured out of Salisbury pig, puddled in wood fire. Both these irons can be depend-