Sinking a Pier at Havre de Grace.

DURING last summer, while spending a couple of weeks at Havre de Grace, at the mouth of the Susquehanna River, the writer had an opportunity to watch the construction of some of the piers for the new Baltimore and Ohio Railroad bridge, and thought it might perhaps be interesting to some of the students to know the method used there to sink the caissons.

Wishing to provide for the few sailing vessels passing up and down the river, and not wishing to build a draw, the Railroad Company were compelled to build their bridge ninety feet above the river.

The greatest depth of mud through which they had to pass was sixty-three feet, with twelve feet of water, and the greatest depth of water was forty feet, with fifty-five feet of mud, so with the ninety feet above the surface of the river, it makes a solid piece of masonry nearly two hundred feet in height. They were fortunate in finding the bed-rock quite level.

The method adopted to sink the caissons was by the pneumatic or plenum process, and very similar to that used at the Brooklyn bridge.

The caisson is first constructed on shore, and is nothing more than a huge box without a bottom, the largest of them being thirty-five feet by seventy feet and eight feet high, inside measurement. The sides are built of the best foot square yellow pine timber, and on this a deck four feet thick is constructed, consisting of three courses of timber, each one foot square, placed crossway, and three courses of four-inch plank crossed in the same manner. The inside is lined with three courses of plank, and the whole is thoroughly calked and pitched until air tight.

On the outside, foot square timbers are spiked perpendicularly, the lower ends being bevelled, forming the cutting edge of the caisson. The spiking on of the timbers is done in a very secure manner with spikes three feet in length. The deck is braced up with a very strong truss.

In the course of construction they leave a hole in the deck into which they put a forty-inch iron cylinder, making it fit perfectly tight, the same being sixteen feet in length, with a trap-door and valve at each end. False bottoms are then put on the caissons so that it may easily be floated to its position.

Air is then forced in by means of compressors located on scows. The men then descend into the iron cylinder, the lower trap being closed, and after having the upper trap closed, they open the lower valve and the compressed air rushes in from below. This is termed the air-lock, and as soon as the air in the lock becomes equalized with that below, the trap door drops down and the men descend into the caisson and proceed to knock off the false bottom. They tried to force it off by the pressure of the air, but did not succeed. The bottom removed, they proceed to build on the crib (see sketch) which holds the concrete; it is built of heavy timbers, well spiked and bolted together. A square opening is left in the centre, through which the iron cylinder and supply pipe pass, and also the