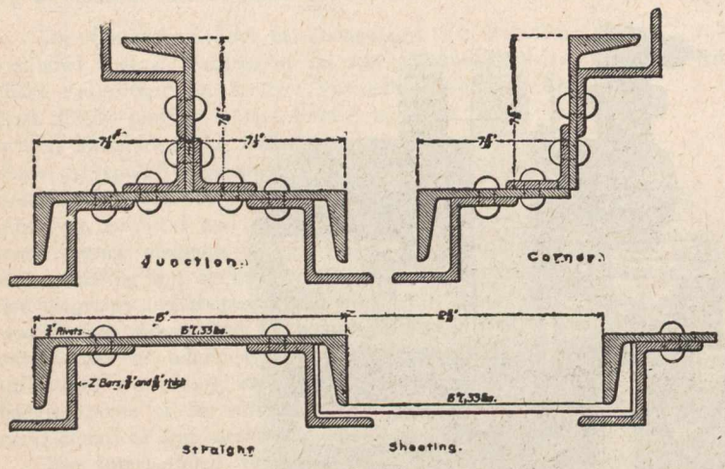
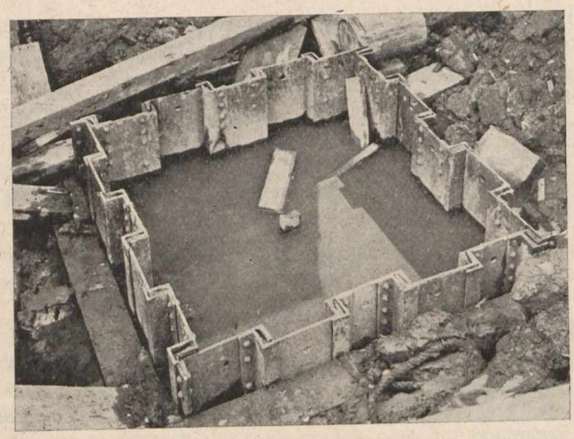
INTERLOCKING SHEET STEEL PILING.

We reproduce herewith photographs taken during the construction of foundation piers for Marshall Field & Co.'s warehouse on Polk St., Chicago. The foundation piers are of the caisson type and were planned to penetrate to a depth of 90 or 100 feet to bed rock. The soil is blue clay, soft sliding clay, quicksand, silt, and a stratum of about 15 feet of hardpan on top of bedrock. From the Manufacturers' Record we take the following description of the construction:

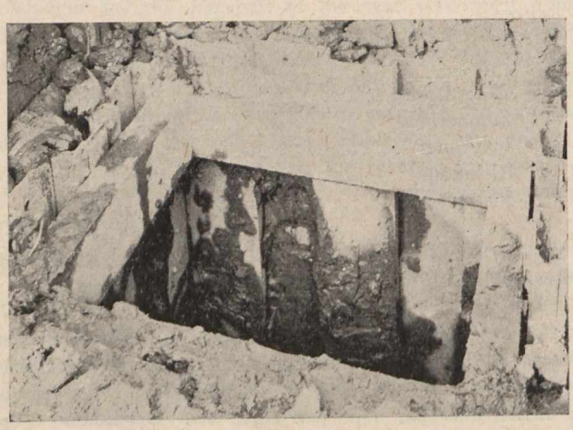


The first caisson was started with a wood curbing seven feet in diameter, with interior adjustable hoops made in two pieces and intended to hold the wood curbing in place. No trouble was experienced until a depth of 30 feet was reached, when all attempts to sink the well further were blocked by the clay and quicksand, which rose within as fast as it was



Steel Caissons Ready for Excavating.

removed. The surface of the street 30 feet away sank so much that Polk street bridge had to be closed for a time, owing to the sink-hole apparently caused by the removal of earth.

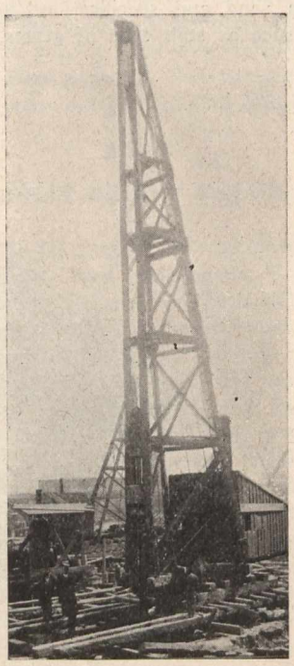


Steel Caissons Ready for Concrete.

A shield was then constructed of ½-inch steel plates in four sections to assemble in circular form. The shield had a sharp cutting edge and was forced down with hydraulic jacks, but this plan also failed, and the work was at a standstill.

Interlocking channel-bar piling was then provided and assembled in the form of a square, the piling being forty feet long, which was considered sufficient to pass through the soft strata. A No. 1 Vulcan steam hammer was used to drive the piling, which easily penetrated the upper strata that had effectually prevented the sinking of the caissons.

A cornerpiece was first placed in position between the leaders of the pile-driver, plumbed, and the hammer lowered to the steel cushion, which rested on the top of the piling to prevent battering by the hammer. The weight of the ham-



Method Employed in Driving.

mer alone—10,000 pounds—sufficed to force the piling down 25 or 30 feet, and eight or ten blows drove it into place. After the driving of a corner was accomplished, the ensuing piles were driven in turn until the square was completed. The perfect closing of the square was attained by the use of a special arrangement furnished with the piling.

The makers of this piling are the Friestedt Interlocking Channel Bar Co. The piling has been used in Chicago in connection with foundation work for the past two years, and is now in use extensively throughout the Western States for retaining walls, coffer dams, bridge piers, etc. It has many advantages over wood piling. It can be driven to a greater depth and with greater ease; being interlocking it closes up and prevents water coming through; and where it is used, as in the illustrations, it requires no cross-bracing, which in wood caissons forms a serious barrier to the removal of the soil. In the Marshall Field warehouse, the piling is about twenty feet longer than has been used before in similar work, and it is not yet known whether or not the sheets can be pulled out and used again. This, however, is a point of minor importance.

The item of cost has been considered by the manufacturers and owing to the method of rolling employed, the channel bar used is almost perfect in construction and at the same time comparatively low in cost.

PRODUCTION OF PETROLEUM.

The annual report of the United States Geological Survey upon the production of petroleum in 1903, presents a most comprehensive view of the industry. Following is an abstract of the Canadian section of the report:

Canada—Ontario—The production of petroleum in Canada comes almost entirely from the Petrolia and Oil Springs district in Lambton County, and Bothwell, in Kent County, Ontario. One of the first productive wells was put down at Oil Springs, in 1862, which flowed vigorously. For nearly twenty-five years the quantity of petroleum produced in Canada has been gradually declining, notwithstanding the opening of a number of smaller pools within the past four years. One of the most important of the recently developed pools is known as the Dutton district, in Elgin County. There was also some production in the southeastern portion of Essex County.