G. A. Parker.

Caisson.

No. 44,111. Patented Sept. 6, 1864.

Fig: 1.

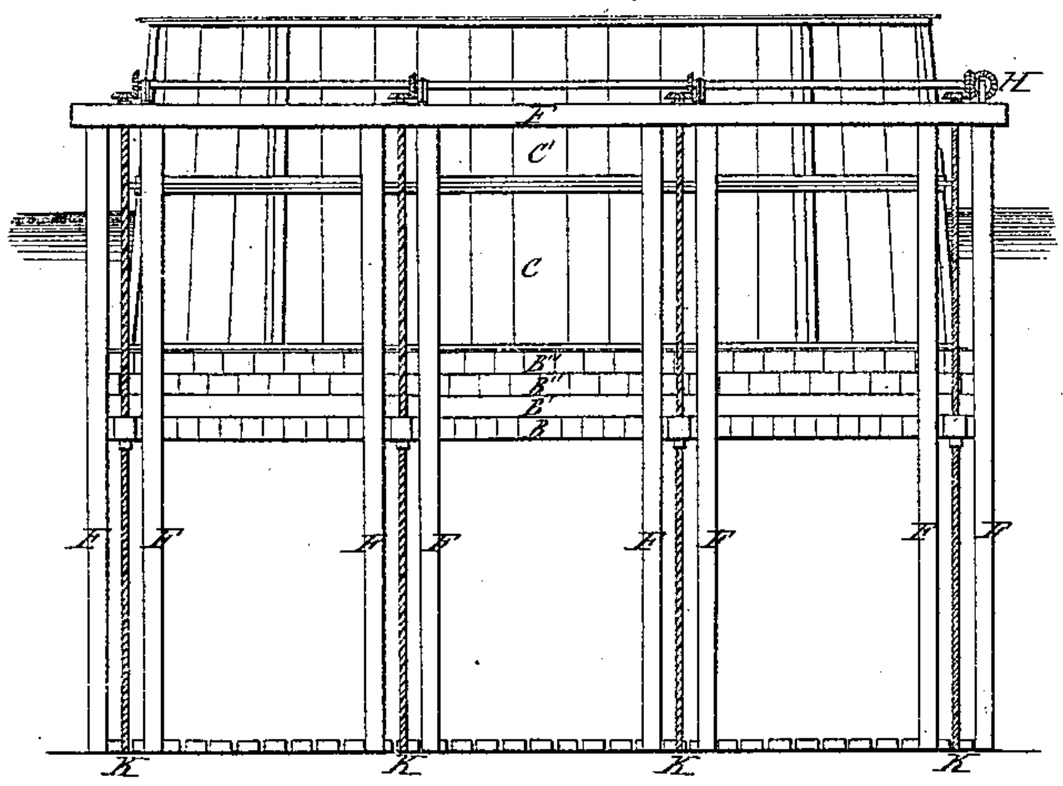

Fig: 2.

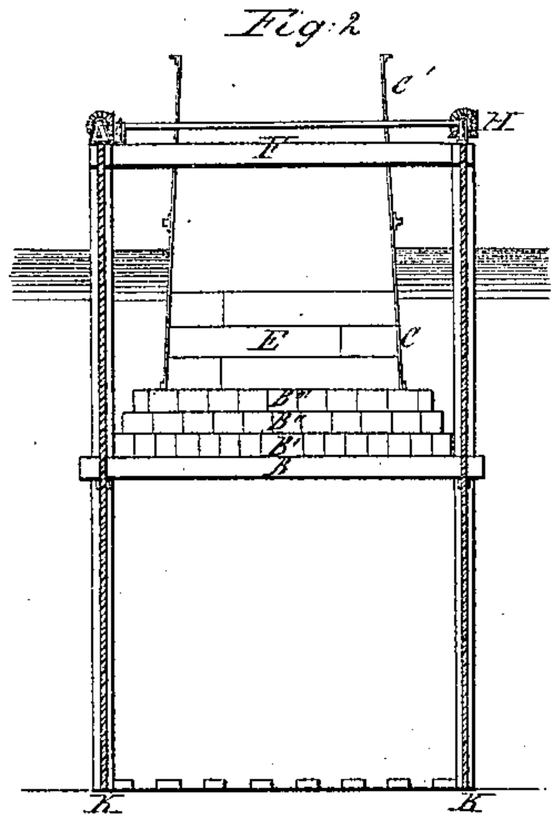

Fig: 3.

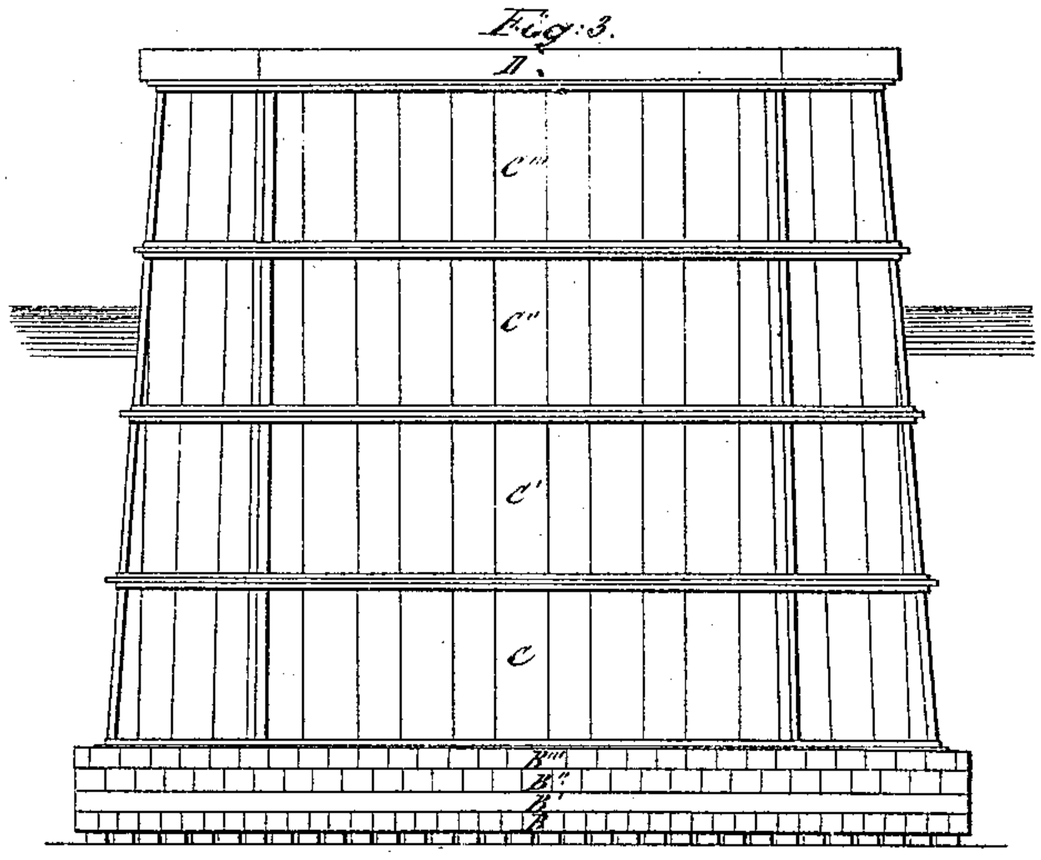

Fig: 4.

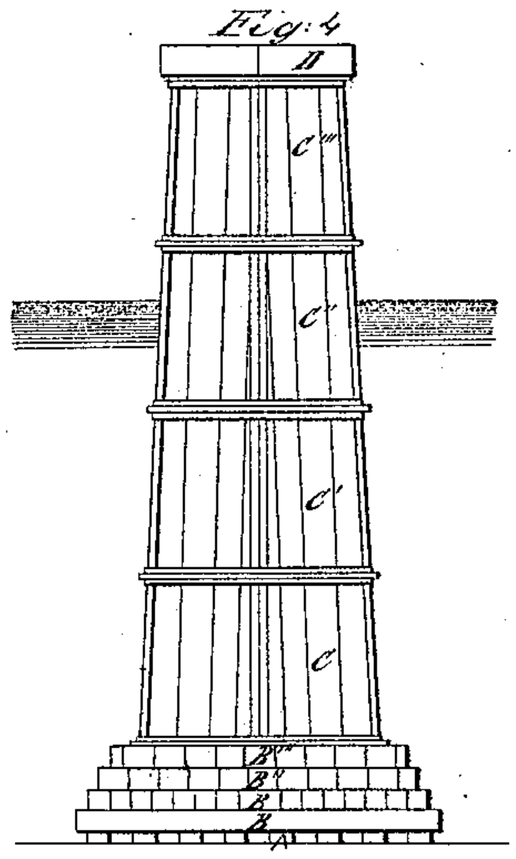

Fig: 5.

Witnesses.
F. Larkin
Jno L. Emerson

Inventor.
Geo A. Parker

UNITED STATES PATENT OFFICE.

GEORGE A. PARKER, OF LANCASTER, MASSACHUSETTS.

IMPROVEMENT IN SUBAQUEOUS STRUCTURES.

Specification forming part of Letters Patent No. 44,111, dated September 6, 1864.

To all whom it may concern:

Be it known that I, GEORGE A. PARKER, of the town of Lancaster, in the county of Worcester and State of Massachusetts, have invented a new and Improved Mode or Process of Forming, Founding, and Erecting Subaqueous Structures; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Figure 1 is a side elevation of a pier in process of construction. Fig. 2 is a transverse section of the same elevation. Fig. 3 is a side elevation of a finished pier. Fig. 4 is an end elevation of a finished pier. Fig. 5 is a plan of a finished pier with the coping removed.

Similar letters in the several figures indicate corresponding parts.

To enable others skilled in the art to perform with my invention, I will describe its construction and mode of operation.

In the accompanying drawings, A represents a prepared pile foundation. B B′ B″ B‴ represent the several courses of a timber platform. C C′ C″ C‴ represent the several sections of the caisson. D represents the coping course of stone. E represents the stone work. F represents the framing and guide-piles used in construction. H represents the gearing for lowering. K represents the screws for lowering and guiding.

The preparation of the foundation or surface upon which the subaqueous structure is designed to rest, and the manner of building and arranging the framing and guide-piles depend on the character of the bed of the stream or body of water, whether mud, sand, gravel, rock, or other substance, and involve questions of engineering science which must be determined and the foundation be prepared before my process or method shall become operative.

When the foundation is ready and the framing and guide-piles are completed and put in place, the platform B B′ B″ B‴ is floated in place between the guide-piles F. The lowering apparatus, either male and female screws or chains, or their equivalents, are put in place and connected by shafts and bevel-wheels, or their equivalents; or, if expedient, the screws may be turned separately by hand-power by means of a wrench or otherwise, care being taken to secure a uniform number of revolutions of all the screws so as to keep the platform in a horizontal position. The number of screws or chains to be used must be determined by the weight intended to be imposed on each. If chains be used one end of each should be fastened to the platform B B′ B″ B‴ at suitable points, and the rest of the chain should be wound on a drum, or its equivalent, connected with the shafting. If screws be used they should be put in place and fixed, being made to turn in a nut on the under side of the platform B B′ B″ B‴, in this respect differing from the usual practice, which consists in fastening the lower end of the screw to the platform, whereby nearly the whole length of the screw projects above the work at its commencement and enhances the difficulty of construction. Upon the platform B B′ B″ B‴ should be placed and firmly secured by bolts or otherwise a section, C, of a water-tight caisson, made of metal or other suitable material of the requisite thickness, height, and form, and having a bottom of similar material to the sides, or other suitable substance. Within this section of the caisson should be laid stone of the requisite class of masonry, the quantity of which must be determined by the weight to be imposed on the screws or chains. When the proper quantity of stone shall have been thus laid, this section of the caisson should be lowered to such a depth that its top shall be as near the surface of the water as may be safe or expedient, when another section, C′, should be placed on the first and the joint between the two sections be made water-tight. In this second section of the caisson the stone should be laid as before described and the section lowered in the same manner as the first. Additional sections of the caisson should be similarly used, if required by the depth of water, and the same process repeated until the pier or fabric rests upon its proper foundation and reaches to the desired height or elevation above the bed of the stream or body of water.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The building and setting of stone piers for bridges and other structures, by means of a suspended sectional iron caisson, substantially in the manner herein described.

2. The use of the caisson, which constitutes

the coffer-dam, for permanently enclosing and strengthening the pier, substantially as described.

3. In combination with an iron caisson in which a pier is built and lowered to its foundation, and which caisson forms a permanent iron casing to the pier, a timber platform, B, united thereto in the manner subtantially as and for the purpose described.

GEO. A. PARKER.

Witnesses:
F. E. FELTON,
I. S. ATKINSON, Jr.,