

No. 640,377.

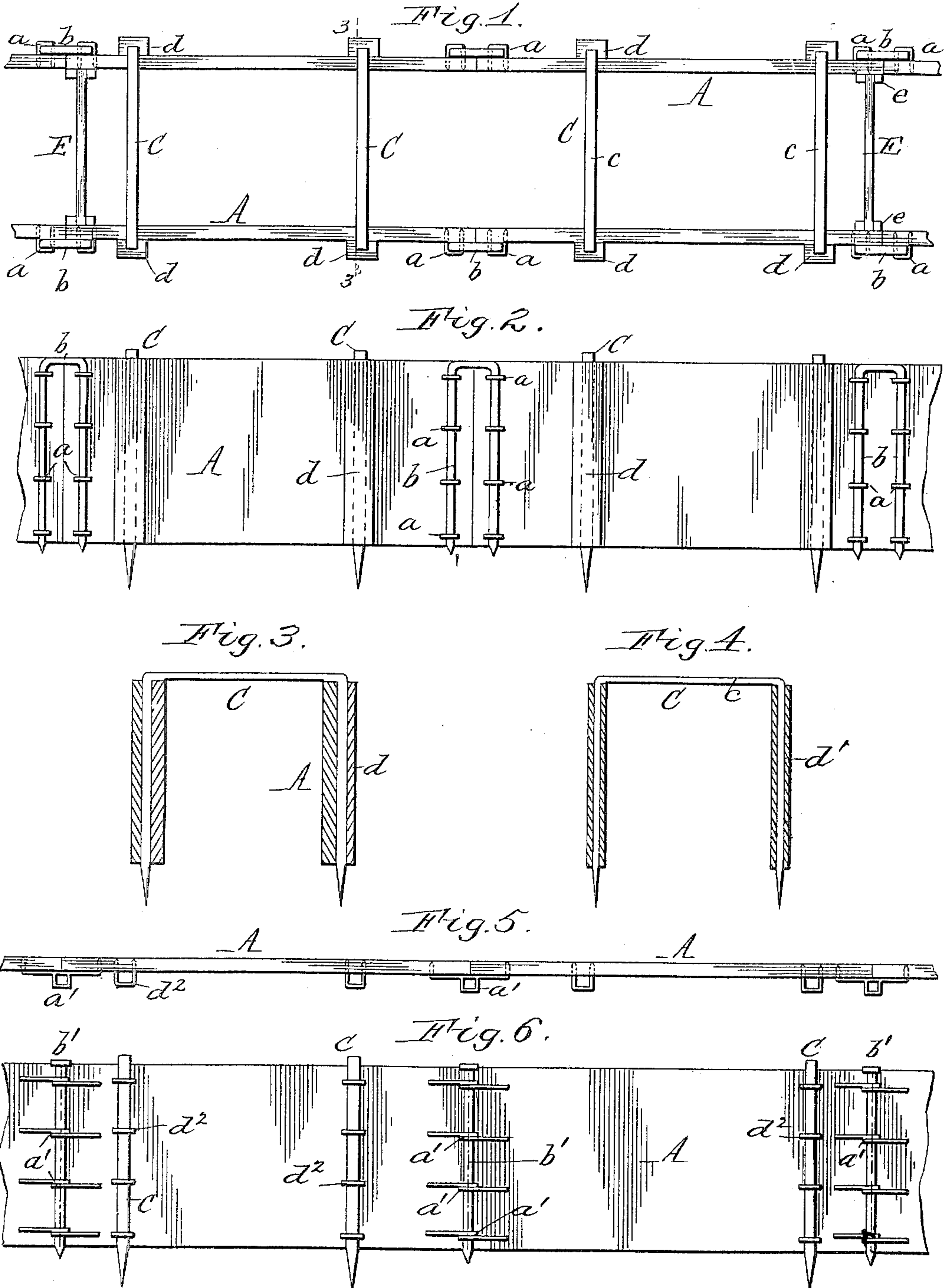
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J. G. HAENTGES.

CRIB FOR BUILDING PIERS, WALLS, &c.

(Application filed June 9, 1899.)

(No Model.)



Witnesses:

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# UNITED STATES PATENT OFFICE.

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## CRIB FOR BUILDING PIERS, WALLS, &c.

SPECIFICATION forming part of Letters Patent No. 640,377, dated January 2, 1900.

Application filed June 9, 1899. Serial No. 719,891. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN G. HAENTGES, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Crib for Building Piers, Walls, &c., of which the following is a specification.

This invention relates to a separable crib for piers, breakwaters, and similar structures, for repairing breaks in canals, and for constructing concrete foundations and walls of buildings, &c. A crib of this character is shown and described in Letters Patent of the United States No. 554,680, granted to me February 18, 1896.

The objects of my invention are to improve the locking devices or connections whereby adjoining sections of the crib-walls are separably fastened together and to provide the crib with ties or transverse binding-bars, which, while firmly holding the opposing walls of the crib in position, are arranged wholly on the outer side of the crib, so as not to present any projections on the inner side of the crib, thereby leaving the side surfaces of the concrete filling free from the depressions or spaces which are formed by internal binding-bars and which must be filled up after withdrawing the bars in order to give the work a finished appearance.

In the accompanying drawings, Figure 1 is a top plan view of my improved crib. Fig. 2 is a side elevation thereof. Fig. 3 is a transverse vertical section in line 3-3, Fig. 1. Fig. 4 is a similar section of a modified construction of the crib. Fig. 5 is a top plan view of one side of the crib, showing a modified construction of the separable connections between adjoining sections of the crib-walls. Fig. 6 is a side elevation of a crib having such modified connections.

Like letters of reference refer to like parts in the several figures.

A are the sections of the opposing upright walls of the crib, which may be made of wood or sheet metal. In the drawings these walls are represented as being parallel; but they may be arranged at a greater or less angle, as required. The ends of adjoining sections of the crib-walls are flush with each other, and each section is provided on its outer side,

at or near the joint between the sections, with an upright row of horizontal eyes, loops, or staples *a*. Through the two adjacent rows of staples of adjoining sections are passed the legs of a vertical staple or U-shaped connecting-bar *b*, so that the connecting-bar of the staple-legs extends across the joint between the sections, as shown in Fig. 2, thereby firmly connecting the sections. The sections are readily separated by withdrawing the staple-shaped connecting-bars from the eyes or staples of the sections.

If desired, the rows of eyes or loops of the adjoining sections may be arranged in vertical alinement with each other, as shown at *a'* in Figs. 5 and 6, and a single connecting-bar *b'* passed through the coinciding eyes. In this case the two series of eyes *a'* project beyond the ends of the sections, so that all of the eyes extend across the joint between the sections.

C represents transverse ties or binding-bars, preferably of tool-steel, which brace and connect the opposing side walls of the crib for holding the same in position during the process of filling the crib with concrete or other material. These binding-bars are substantially U-shaped, and their horizontal cross-bars *c* extend across the top of the crib walls or sections, while their upright legs embrace the sides of the crib outside of their inner surfaces, so that the binding-bars are arranged wholly outside of the space inclosed by the crib-walls. In the construction shown in Figs. 1, 2, and 3 the legs of the binding-bars are arranged in upright pockets *d*, secured to the outer sides of the crib-walls; but, if desired, they may be arranged in upright openings *d'*, formed directly in the walls, as shown in Fig. 4. In either case the binding-bars and the pockets or openings which receive their vertical legs are arranged outside of or beyond the inner surface of the crib-walls, thus avoiding the formation of projections of any kind on the inner side of the crib and leaving the sides of the concrete mass inclosed by the crib smooth and finished in appearance upon removing the cribbing. By the use of such outside binding devices the same do not become embedded in the concrete, and no spaces or indentations are there-



fore left in the same which must be filled after removing the binding-bars, as is the case when internal binding devices are employed.

Instead of providing the crib-walls with pockets  $d$ , extending from top to bottom thereof, they may be provided with a vertical row of eyes or staples  $d^2$  for receiving the legs of the U-shaped binding-bars, as shown in Figs. 5 and 6.

For some purposes the legs of the binding-bars may be extended below the crib-walls and pointed, so that they can be driven into the ground, and thereby hold the lower portions of the crib-walls in their proper position and prevent displacement of the crib along the ground.

When required, the ends of the crib are closed by transverse end plates or sections E, which are removably confined in upright grooves or ways  $e$ , arranged on the inner sides of the crib-walls.

My improved crib is suitable for the construction of piers, breakwaters, docks, culverts, abutments for railway and other bridges, and also for constructing concrete foundations and walls of buildings, floor-tiling, sills, ashlers, window and chimney caps, coping, quoins, sidewalks, and driveways.

In constructing a concrete foundation or wall with my improved crib a crib of the proper dimensions is filled with concrete, and when the latter is sufficiently dry and hard the crib is elevated and sustained by suitable supports, so that its lower edge is raised to or nearly to the top of the hardened layer of concrete. A second layer of concrete is then placed in the crib, and after the same is dry and hard the crib is again elevated and filled, and soon until the foundation or wall is raised to the required height. Windows and doors can be formed in the wall as it is being erected by placing suitable forms or frames in the crib and filling in the concrete around the same. In this manner very strong and substantial walls, foundations, sidewalks, &c., are cheaply and quickly constructed. In order to strengthen the mass and bind it together tightly, I prefer to embed in the concrete a number of wires, which may extend both lengthwise and crosswise of the concrete.

I claim as my invention—

1. In a crib for constructing walls, piers, &c., the combination of the walls of the crib composed of separable sections, the adjoining sections being provided on their outer sides adjacent to their ends with vertical rows of horizontal eyes or loops, and vertical connecting-bars passing through the two sets of staples of adjoining sections, substantially as set forth.

2. In a crib for constructing walls, piers, &c., the combination of the walls of the crib composed of separable sections, each section being provided near its end with a vertical row of horizontal eyes or loops, and an upright staple-shaped connecting-bar having its legs passed through the eyes of adjoining sections, substantially as set forth.

3. In a crib for building walls, piers, &c., the combination with a pair of opposing upright walls, of a U-shaped tie or binding-bar embracing said walls, the legs of the binding-bar being arranged outside of the inner surface of the crib-walls and the connecting-bar of the legs extending across the top of the walls, substantially as set forth.

4. In a crib for building walls, piers, &c., the combination with a pair of opposing upright walls, each provided on its outer side with upright pockets, of a U-shaped binding-bar embracing said walls and having its upright legs arranged in the external pockets of the crib-walls, substantially as set forth.

5. In a crib for constructing walls, piers &c., the combination with the opposing walls of the crib, each composed of separable sections, which are provided adjacent to their adjoining ends with vertical rows of external eyes or loops, and between their ends with external upright pockets, upright connecting-bars passing through the eyes or loops of adjoining sections, and U-shaped binding-bars embracing the opposing walls of the crib and having their legs arranged in the upright pockets thereof, substantially as set forth.

Witness my hand this 2d day of June, 1899.

JOHN G. HAENTGES.

Witnesses:

ALBERT W. BISHOP,  
CARL F. GEYER.