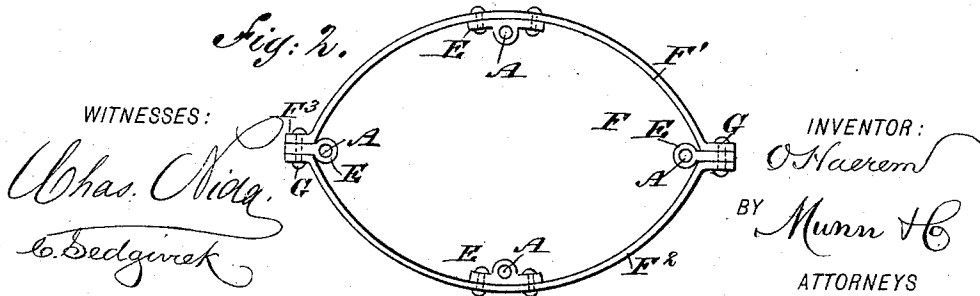
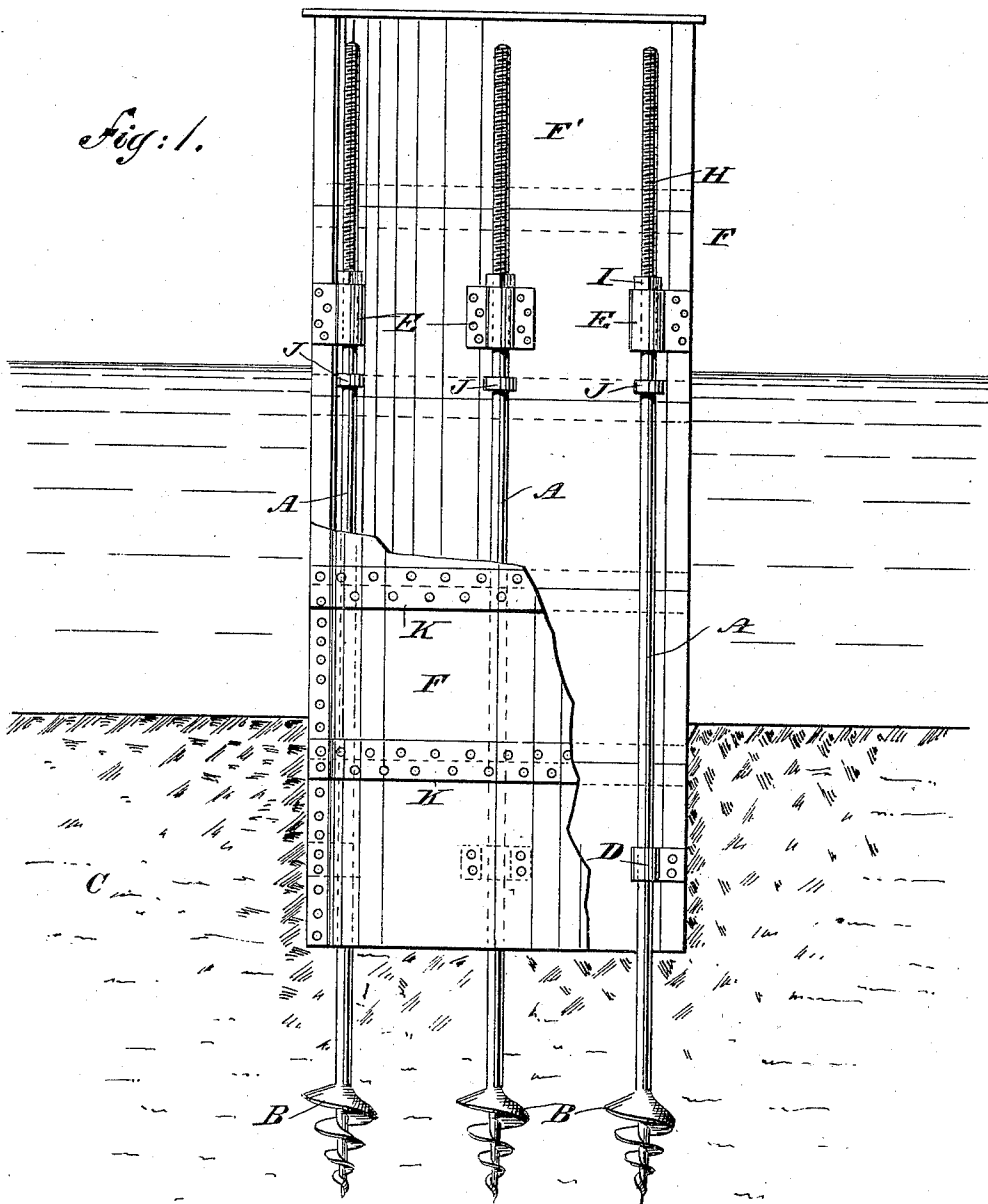


(No Model.)

O. HAEREM.
PIER.

No. 474,734.

Patented May 10, 1892.



WITNESSES:

Chas. Nida
C. Sedgwick

INVENTOR:

O. Haerem
BY *Munn & Co*
ATTORNEYS

UNITED STATES PATENT OFFICE.

OMMUND HAEREM, OF HOUSTON, TEXAS.

PIER.

SPECIFICATION forming part of Letters Patent No. 474,734, dated May 10, 1892.

Application filed November 6, 1891. Serial No. 411,024. (No model.)

To all whom it may concern:

Be it known that I, OMMUND HAEREM, of Houston, in the county of Harris and State of Texas, have invented a new and Improved Pier, of which the following is a full, clear, and exact description.

The invention relates to piers for bridges and other substructures.

The object of the invention is to provide a new and improved pier which is simple and durable in construction, possesses great stability and strength, is readily sunk in the water and fastened in place, arranged to be built up to any desired height, and designed so as to cut the water in order to reduce the power of the current to a minimum.

The invention consists of a series of rods formed at their lower ends with augers and adapted to pass through ears of an exterior shell forming the wall or casing of the pier.

The invention further consists of a shell made in parabolic sections.

The invention also consists in certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a side elevation of the improvement with parts of the shell broken out, and Fig. 2 is a plan view of the same.

The improved pier is provided with a series of rods A, arranged vertically and each provided at its lower end with an auger B, adapted to screw into the ground or bed C of the river, lake, stream, &c., in which the pier is to be built. The rods A pass through sets of ears D and E, secured by rivets or other means to the inside of a shell F, forming the casing or wall of the pier.

The shell F is preferably made of two sections F' and F², each parabolic in shape, the bases being fitted together by means of flanges F³, extending from the edges of the said sections, as is plainly illustrated in the drawings. The flanges F³ are fastened together by rivets G or other suitable means. Each section F' or F² is preferably made of metal, and, according to the height of the pier, in sections riveted or otherwise fastened together.

The upper ends of the screw-rods A are formed with screw-threads H, on each of which screws a nut I, adapted to abut against the corresponding upper ear E, so that when the said nuts are turned after the rods A are in place the shell F is pressed downward into the ground until it strikes a solid foundation. On the rods A are adapted to be fastened collars J, located below the ears E, so that when the shell F is in its lowermost or resting position the said ears rest on the said collars J, thus exerting a downward pressure on the rods A to hold the latter in place in addition to the retaining power of the augers B.

As shown in Fig. 1, the several parts of each section F' or F² are connected at their joints by means of bands K, riveted to the two adjacent parts of the respective section.

In setting up the pier the series of rods A are fastened in the ground or bed C by turning the said rods, so that the augers B bore into the ground or bed, as shown. When the several rods are in place, the shell F is passed over the said rods, so that the latter engage the sets of ears D and E, the shell then passing down into the water until it reaches the bottom. The nuts I are then screwed on the threads H to press on the sets of ears E, so as to move the shell F downward, pressing the lower end into the ground or bed C until the desired depth is reached, as previously explained. It is understood that the collars J are put in place on the rods A after the ears D have engaged the said rods and before the latter engage and pass through the ears E. It is understood that the shell F has its pointed edges arranged in line with the current, so that the water is cut, and consequently the power of the current breaking over the pier is reduced to a minimum. It will be seen that by screwing the shell F down into the proper position the driving of piles can be omitted, as well as the extensive pumping of the water, and a coffer-dam is not required. The shell F will always be in a vertical position, as the rods A serve as guides, so that great stability of the pier is obtained.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A pier consisting of a shell and a series of rods engaging ears on the said shell and

screwing into the ground or bed of the river, substantially as shown and described.

2. A pier comprising a shell provided at the inside with sets of ears and rods passing
5 through the said ears and each provided at its lower end with an auger adapted to screw into the ground or bed of the river, substantially as shown and described.

3. A pier comprising a shell provided at the
10 inside with sets of ears rods passing through the said ears and each provided at its lower end with an auger adapted to screw into the ground or bed of the river, and nuts screwing on the upper threaded ends of the said rods
15 to abut against the upper set of ears, substantially as shown and described.

4. A pier comprising a shell provided at the inside with sets of ears, rods passing through the said ears and each provided at its lower
20 end with an auger adapted to screw into the ground or bed of the river, nuts screwing on the upper threaded ends of the said rods to bear against the upper set of ears, and collars held on the said rods below the upper set of

ears to form a resting-place for the latter, substantially as shown and described. 25

5. A pier provided with a metallic shell made in two vertical sections, each parabolic in shape, the vertical side edges of the two sections being fastened together and with
30 their joints extending in line with the current of water of the river, substantially as shown and described.

6. In a pier, the combination, with a series of vertically-arranged rods secured in the
35 ground or bed of the river, of a shell made of two vertical sections engaging at their inside the said rods and each being parabolic in shape, the vertical side edges of the two sections being fastened together and their joints
40 extending in line with the current of water of the river, substantially as shown and described.

OMMUND HAEREM.

Witnesses:

H. WEATHERS,

GEO. P. U. SADLER.