

(No Model.)

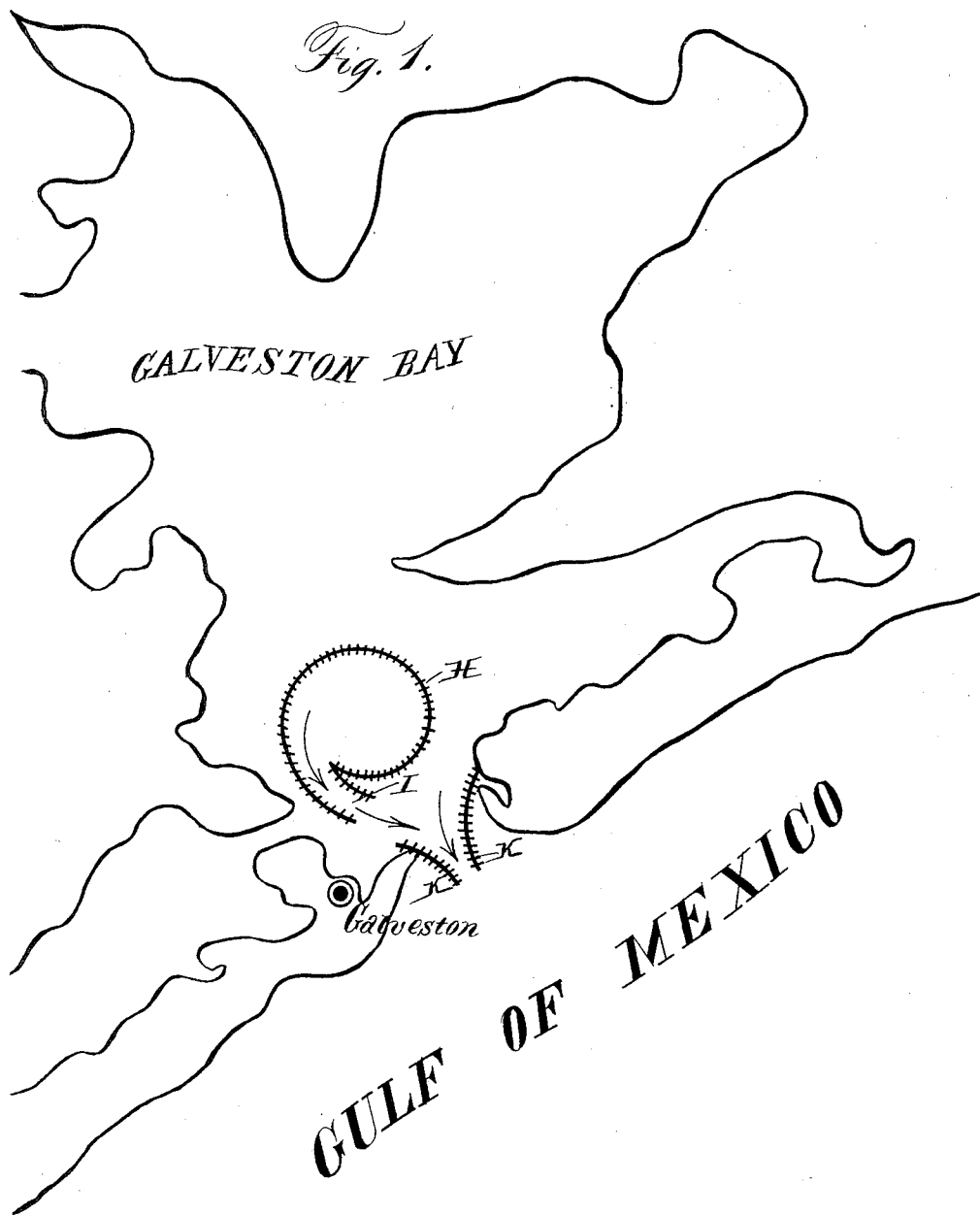
3 Sheets—Sheet 1.

D. SPANGLER.

SUBMARINE WALL.

No. 325,127.

Patented Aug. 25, 1885.



Witnesses
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(No Model.)

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Fig. 2

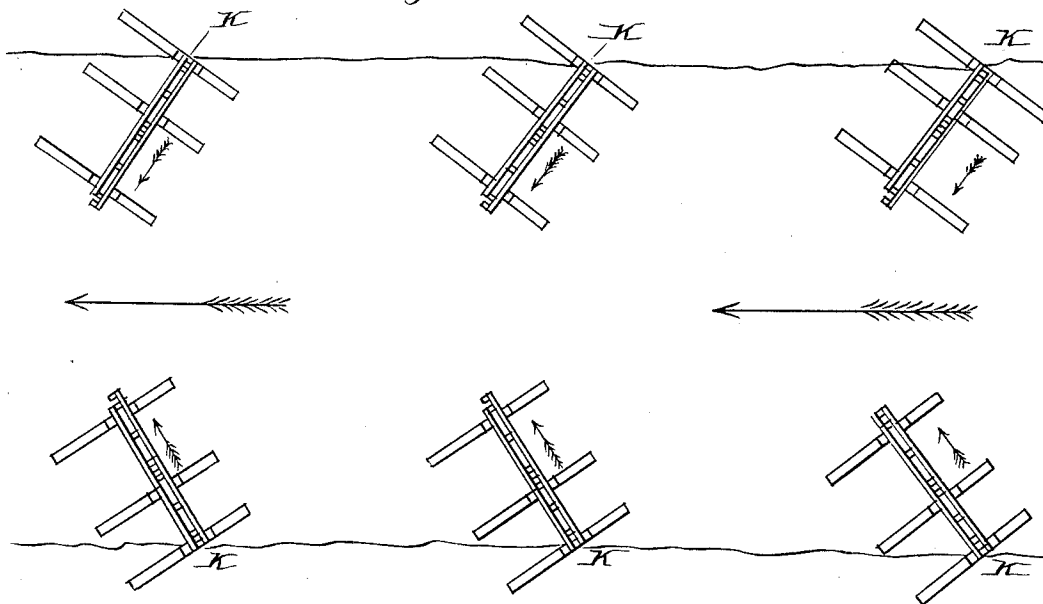


Fig. 5

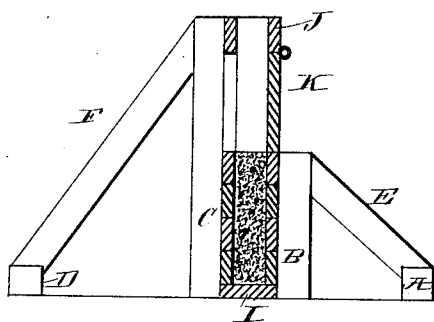
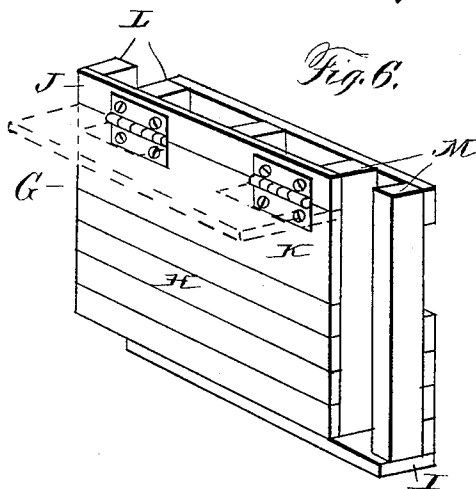


Fig. 6



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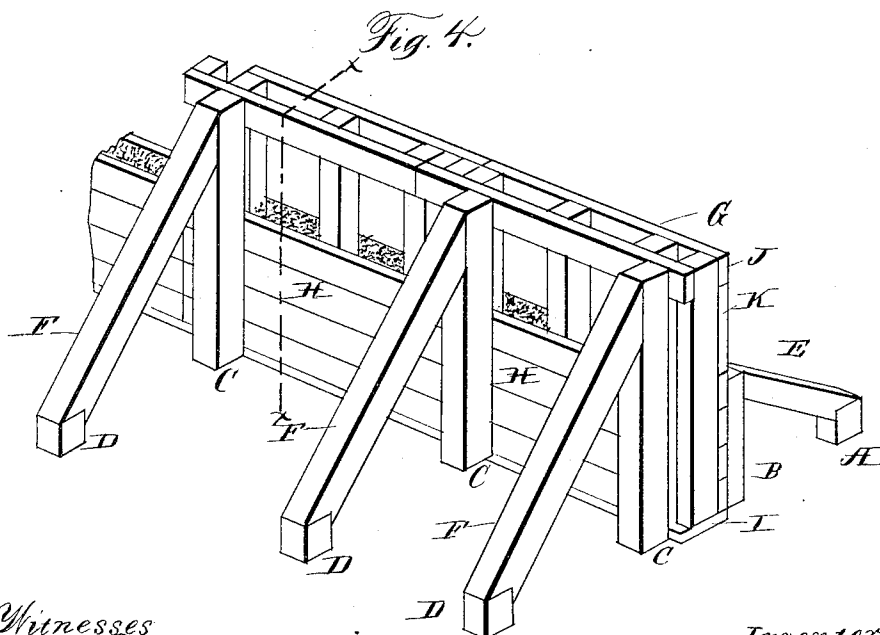
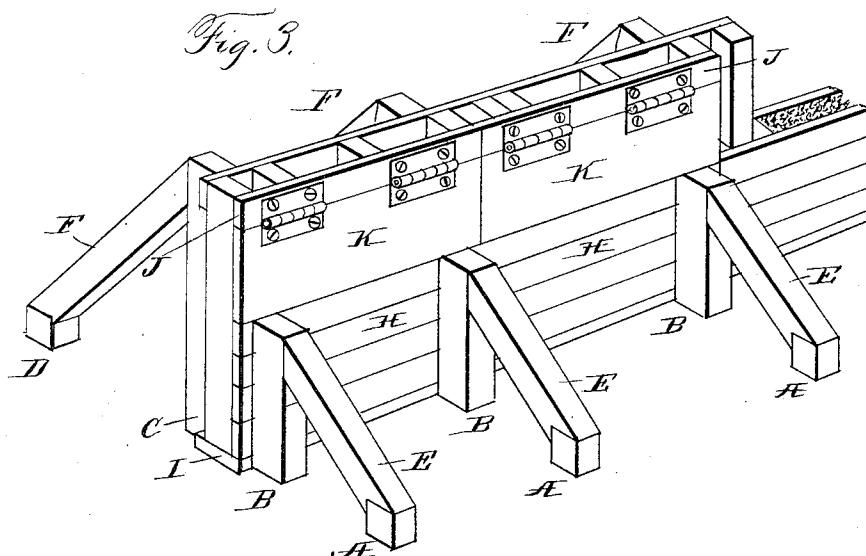
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Patented Aug. 25, 1885.



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UNITED STATES PATENT OFFICE.

DANIEL SPANGLER, OF HANFORD, CALIFORNIA.

SUBMARINE WALL.

SPECIFICATION forming part of Letters Patent No. 325,127, dated August 25, 1885.

Application filed May 29, 1885. (No model.)

To all whom it may concern:

Be it known that I, DANIEL SPANGLER, a citizen of the United States, and a resident of Hanford, in the county of Tulare and State of California, have invented certain new and useful Improvements in Submarine Walls; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 represents a plan of the harbor of Galveston, Texas, taken for example, showing the manner of applying my improved submarine wall thereto. Fig. 2 is a plan view of a section of river or stream provided with my improvement. Fig. 3 is a perspective view of a section of the wall, showing that side which faces upstream. Fig. 4 is a similar view of the opposite side, or that side which faces downstream. Fig. 5 is a vertical cross-section on the line *x x*, Fig. 4; and Fig. 6 is a detail perspective view of one of the panels.

Similar letters of reference indicate corresponding parts in all the figures.

My invention relates to submarine walls; and it has for its object to provide rivers, streams, and other bodies of water with means for governing and conducting their tides and currents.

To this end my invention consists in the improved construction and arrangement of parts of such a wall, as will be hereinafter more fully described and claimed.

In the drawings, the letters A B C D each mark a row of piles, which run parallel to each other, and are driven perpendicularly to a considerable depth in the bed of the river. The two outer rows, A and D, project only a small distance above the bed and form abutments for the braces E and F, which extend to the tops of the inner rows, B and C, of the piles. The row B extends about half as high, more or less, as row C.

G indicates the uprights of the panels, to which are secured on both sides the planks H, which are made water-tight and form the facing of the wall. These planks extend as high as the low-water mark, and upon the bottom of each panel is secured a horizontal

plank, I, which, with the side planks, complete a box incasing the uprights, and when the panels are ready to be set this box is filled with sand or other suitable ballast.

At the tops of the uprights are secured planks J, to which are hinged the swinging doors K, adapted to swing in one direction only, as shown in the drawings. The ends of each panel are scarfed together throughout their height by the scarf-planks or interlocking timbers L and M, as shown in Fig. 6, and are capable of being raised one from between the others.

In the illustration Fig. 1 I have shown a line of my wall H running in a circular form to hem in a portion of the area of the bay, and form a pond near its mouth, an open space, I, being left at the point where it is desired to direct the current. At the point marked K, on the drawings, there are two lines of wall, one on each bank of the mouth or outlet of the bay, and these lines of wall converge in the direction of the stream, as shown in Figs. 1 and 2. The manner of building this wall is as follows: After having surveyed the track for the wall, the piles are driven in the proper position. Then the panels, which may be built on land, are floated out and lowered in position between the piles, and the space between the sides of the wall is filled with sand or other suitable ballast, thus anchoring them firmly upon the bed of the river between the two rows of piles B and C.

When my wall is to be used in rivers, &c., it may be planked up on its faces from top to bottom, thus dispensing with the swinging gates; but where it is desired to scour out a channel in a bay or harbor by the influence of heavy tides, I use the wall constructed with the swinging gates, as shown in the drawings.

From the foregoing description, taken in connection with the drawings, it will readily be seen that when my wall is substantially placed in a river or stream at a depth so that the low-water mark will be at the bottom of the swinging doors, and the tide flows, the pressure of the water will open the doors, which remain open until the tide begins to ebb, when the doors are at once closed, thus conducting the water to the direction of the line of wall as it nears the bed of the river or body of water. This device may be used ef-

fectually in removing sand-bars, as well as to form a channel and clean out the beds of rivers and streams by the described method.

I am aware that a submarine wall has been heretofore constructed comprising parallel rows of perpendicular piles provided with connecting-braces, and vertically-removable interlocking panels or sections provided with gates arranged to open in one direction only; and I do not therefore claim such construction, broadly; but

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

1. In a submarine wall, the combination of parallel rows of perpendicular piles provided with connecting-braces, and vertically-removable interlocking panels or sections, said panels or sections being provided at their tops with outwardly-swinging hinged gates and having their bulk or body composed of upright timbers, with facing-planks and a bottom plank which form an incasement or box for the reception of suitable ballast, substantially as and for the purpose shown and set forth.

2. The combination of the parallel rows of vertical piles, the movable interlocking panels disposed between and braced by the inner rows of piles, and the gates forming part of the panels and adapted to swing or open in one direction only, substantially as and for the purpose shown and set forth.

3. A panel for submarine walls, consisting of a rectangular frame adapted to be placed vertically between supporting piles or timbers forming a closed box or receptacle at its lower end, adapted to be loaded with a suitable ballast, and having a swinging gate or gates at its upper part, the lower edge of which impinges upon the upper edge of the box part, substantially as and for the purpose shown and set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

DANIEL SPANGLER.

Witnesses:

J. T. BAKER,

JUL. THONSTRUP.