(No Model.)

5 Sheets—Sheet 1.

A. KRUPP.

FLOATING BATTERY.

No. 265,680. Patented Oct. 10, 1882.

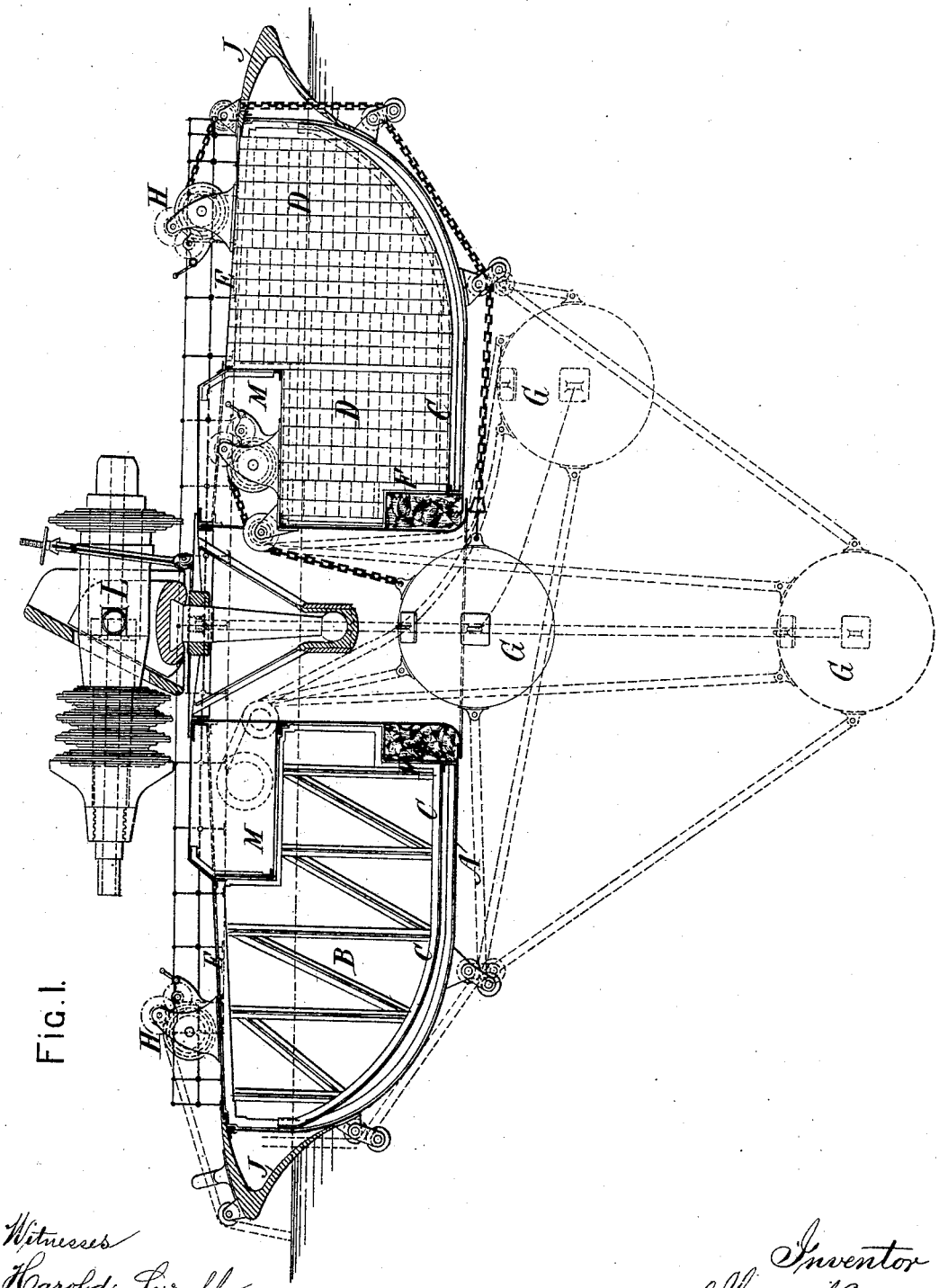

Fig. 1.

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per Alfred Krupp
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(No Model.)

5 Sheets—Sheet 2.

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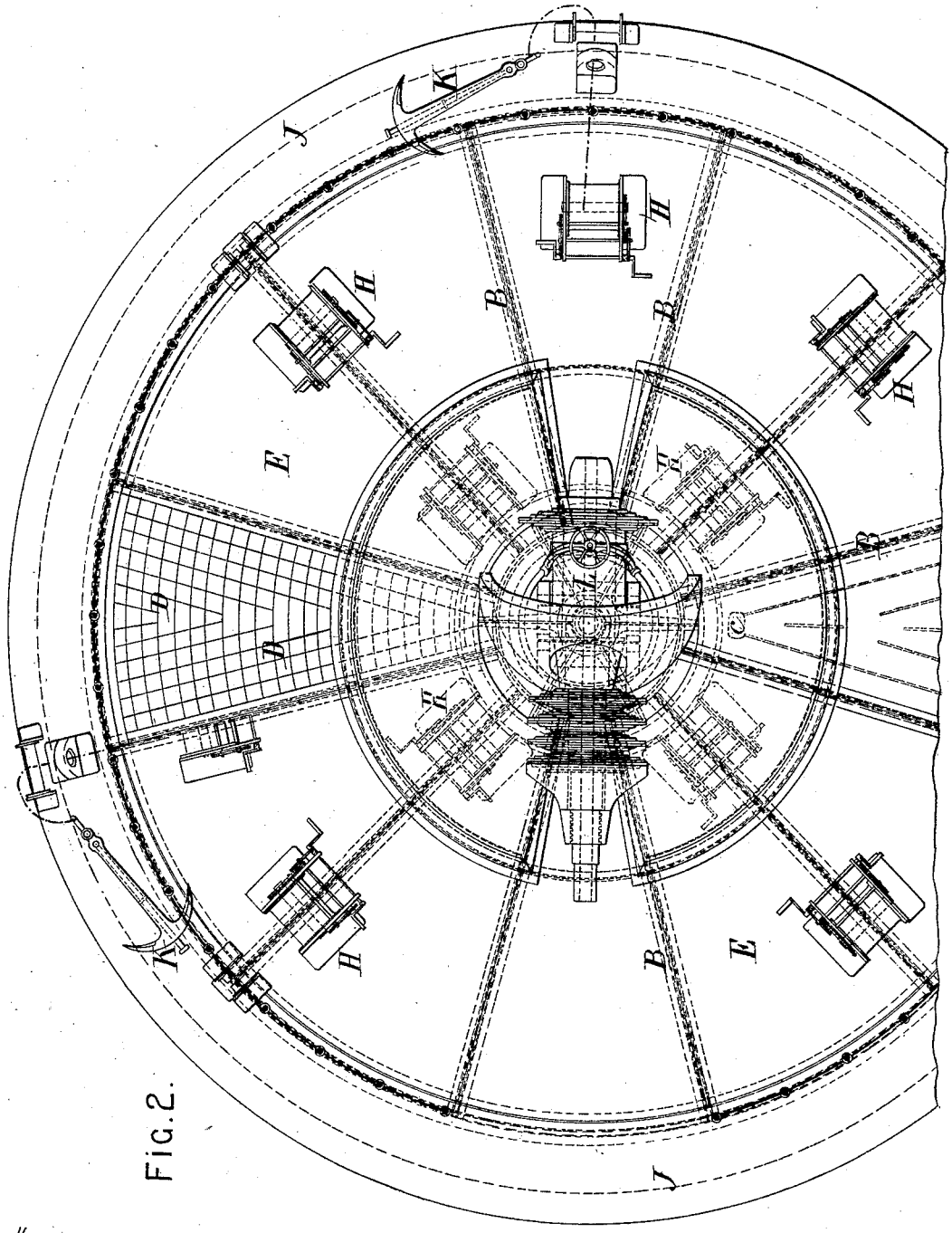

Fig. 2.

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(No Model.) 5 Sheets—Sheet 3.

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FLOATING BATTERY.

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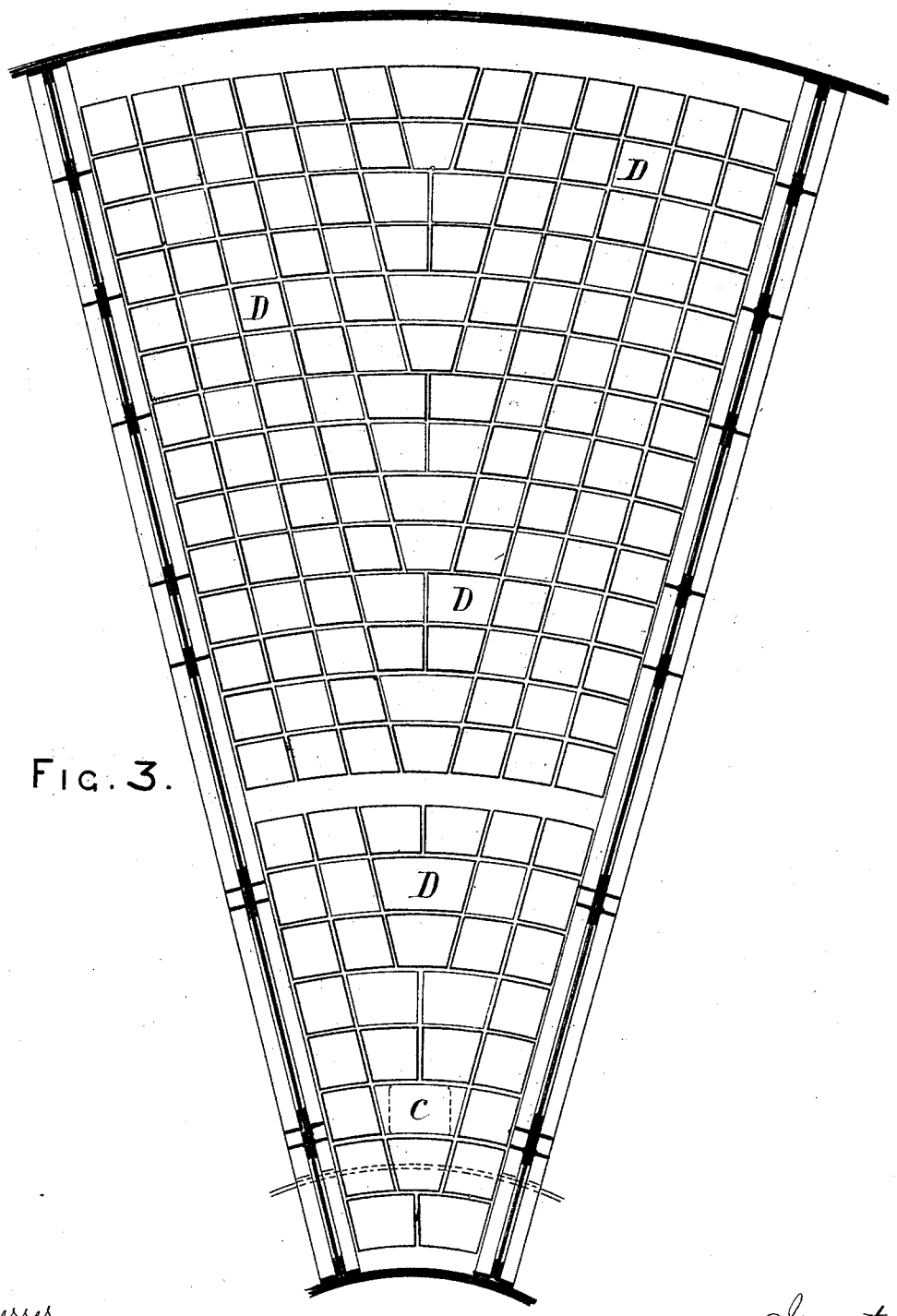

FIG. 3.

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(No Model.) 5 Sheets—Sheet 4.

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FLOATING BATTERY.

No. 265,680. Patented Oct. 10, 1882.

Fig. 4.

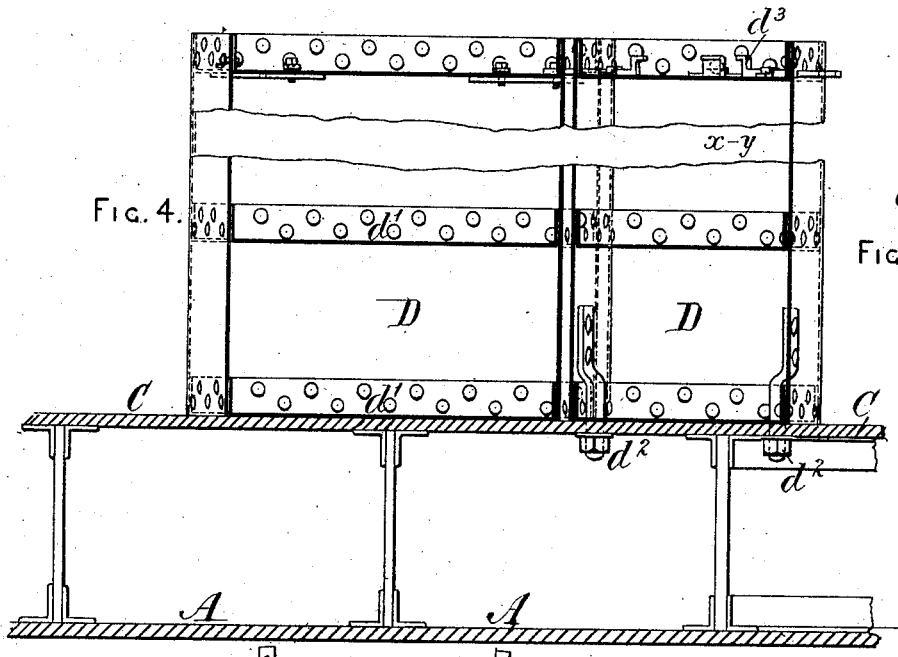

Fig. 5.

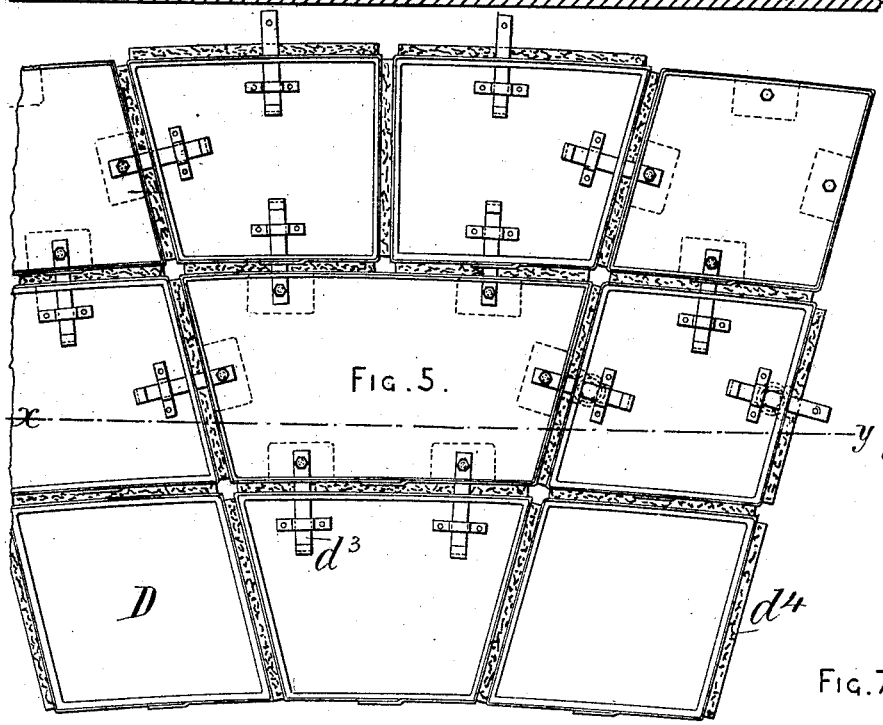

Fig. 6.

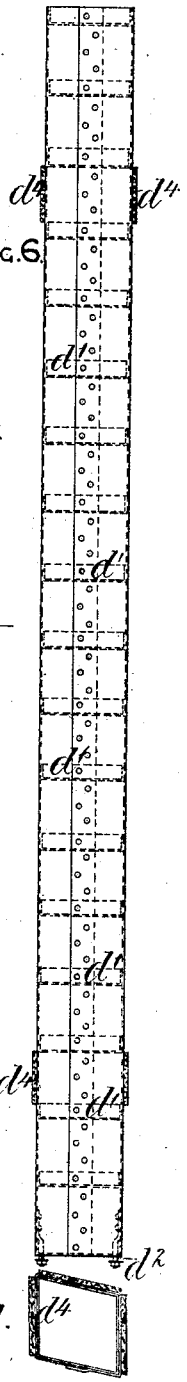

Fig. 7.

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(No Model.) 5 Sheets—Sheet 5.

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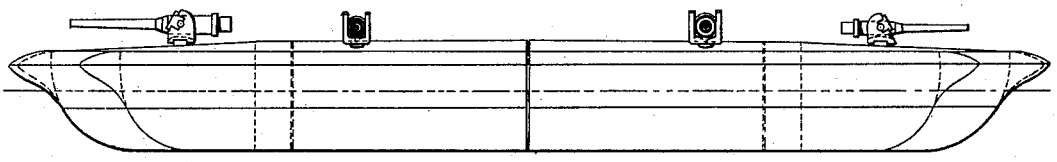
FLOATING BATTERY.

No. 265,680. Patented Oct. 10. 1882.

Fig. 8.



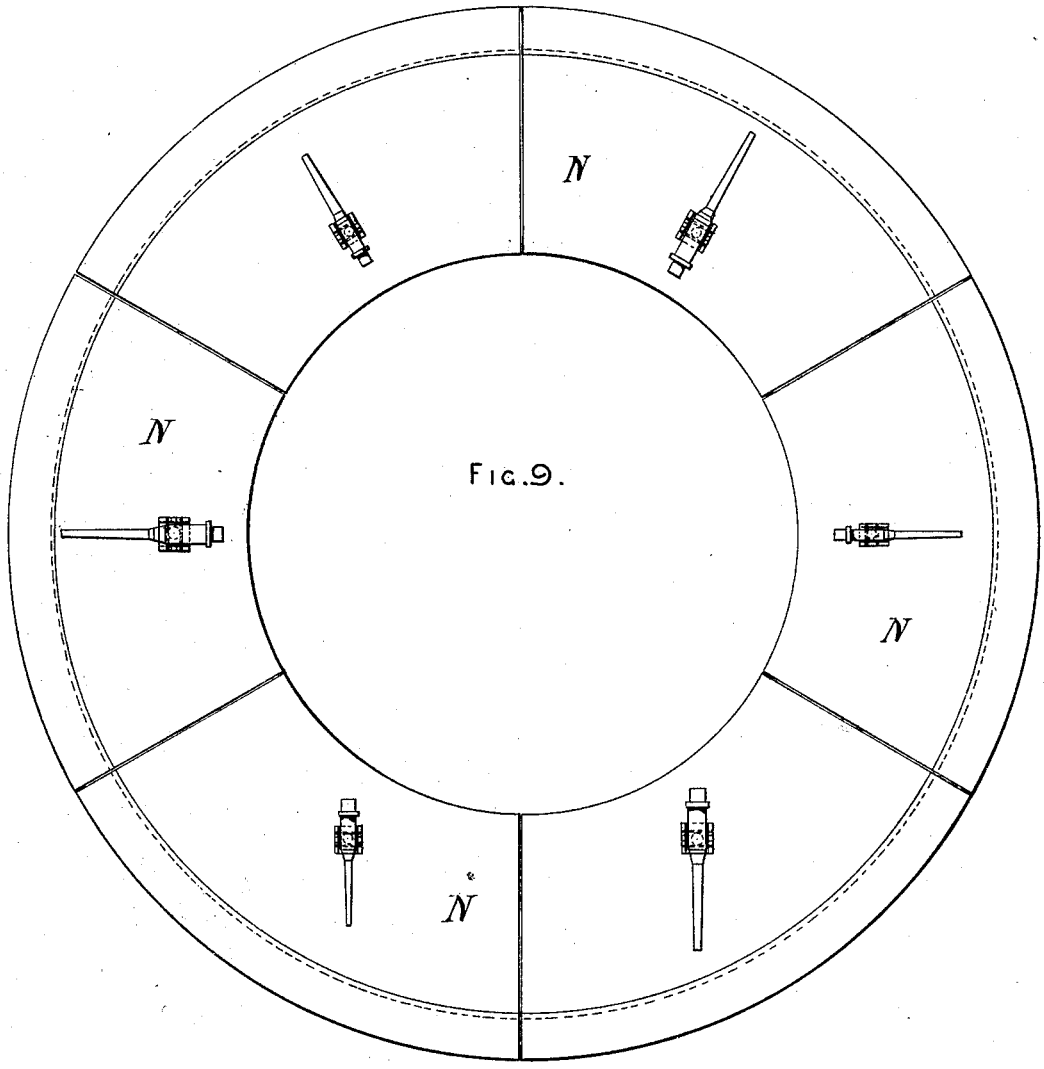


Fig. 9.

Witnesses
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UNITED STATES PATENT OFFICE.

ALFRED KRUPP, OF ESSEN, GERMANY.

FLOATING BATTERY.

SPECIFICATION forming part of Letters Patent No. 265,680, dated October 10, 1882.

Application filed December 19, 1881. (No model.) Patented in England September 27, 1881, No. 4,156; in Germany November 13, 1881, No. 18,193; in France November 30, 1881, No. 146,124; in Belgium December 16, 1881, No. 56,510; in Italy December 31, 1881, XV, 13,714, and in Austria February 14, 1882, No. 280.

To all whom it may concern:

Be it known that I, ALFRED KRUPP, of Essen, Germany, cast-steel manufacturer, have invented new and useful Improvements in Floating Batteries, of which the following is a specification.

The object of this my invention is to provide such a floating battery or gun-platform for the defense of sea-coasts, rivers, and harbors as can readily be conveyed to any threatened point, and which combines the greatest possible stability and safety against sinking. It is intended for ordnance of any size, but chiefly applicable to heavy ordnance.

On the accompanying drawings, Figure 1 is a vertical cross-section, and Fig. 2 a plan with part of the deck removed, of a floating battery constructed according to this invention. Fig. 3 is a part plan, showing the cellular construction of the interior of one of the compartments of the battery. Fig. 4 is a detail vertical section of part of same to a larger scale; Fig. 5, similarly a plan. Fig. 6 is a side elevation of one of the boxes or cells with which the compartments are filled, and Fig. 7 a cross-section through such a cell. Fig. 8 is a side view, and Fig. 9 a plan, of a ring-shaped floating battery consisting of separate sectors combined together and each having its own gun.

The vessel consists, as more particularly shown in Figs. 1 and 4, of skin A, or vessel proper, of a circular or polygonal or annular form in plan. It is by means of radial bulk-heads B divided into a number of sector-shaped compartments—in this case twelve in number—as shown at Fig. 2. Each compartment has a double bottom or inner skin, C, as shown in Figs. 1 and 4. This inner skin is firmly united to the radial bulk-heads, as well as with the outer skin. Each compartment is filled with a number of water-tight boxes, D, Figs. 1, 2, 3, 4, 5, 6, and 7. They are made of thin sheet metal of about one or one and a half square feet in cross-section, and of a length equal to the depth of the body of the ship. Each box or cell is by means of horizontal transverse plates d', Figs. 4 and 6, at a distance of about fifteen inches apart, divided off into still smaller water-tight cellules. These cells or boxes are placed in rows in the sector-shaped compartments of the body of the ship, and may be fastened in various ways either to the deck or to the inner skin, C.

For the sake of security against being broken away, and also to enable boxes which have been damaged to be replaced, I prefer the following mode of fastening: About two-thirds of all the compartments in a certain order—such, for instance, as those which are marked by thicker lines in Fig. 3 in the horizontal section—are screwed to the inner skin or double bottom, C, by means of screws and nuts d^2, Fig. 4. The remaining third is held down by the bolts d^3, Figs. 4 and 5, which are projected from the upper ends of the other boxes or cells which are fastened to the floor. The boxes which are fastened to the floor have therefore not only to transfer their own buoyancy onto the hull of the ship, but also that of the cells or boxes which are held down, and the first-named boxes are therefore made correspondingly stronger. A certain play must be left between the boxes. To hinder all possible shaking and grinding against each other, strips of cork or other suitable material are in suitable places fastened to the boxes as a lining, d^4, Figs. 5, 6, and 7. In the double floor or inner skin, C, of every compartment or division is arranged a man-hole, through which the space underneath is accessible for the purpose of fastening and unfastening the compartments by means of the aforesaid screws and nuts d^2.

The body of the vessel is provided with an iron deck, E, Figs. 1 and 2, and the inner part or intermediate spaces left between the boxes or cells can be filled with water to the same height as that which is outside.

F, Fig. 1, represents ballast which is placed on the bottom of the hull. G, Fig. 1, is a large ballast-weight in the water. (Shown in full lines and in dotted lines to illustrate two different positions of same.) It is suspended in chains or ropes from winches H, Figs. 1 and 2, by which winches the position of the weight G can be changed—that is, raised and lowered and drawn to one side or the other—in order to meet the requirements for the most suitable stability and float-power. By lowering it the

stability is increased, and according to the measure in which one side of the battery or vessel is more damaged than the other, so the diminished floating power of that side can be equalized by pulling the weight G over to the opposite side. In case of need the ballast can be lightened, or it can be lowered to the bottom of the sea by means of the chains, or wholly separated from the battery. There may be an armor, J, all round the edge of the deck, as shown at Figs. 1 and 2, which repels the enemy's missiles without their touching the body of the vessel itself.

Several anchors, K, Fig. 2, serve to anchor the battery. Strong springs may be used in the cables to mitigate the shocks when the sea runs high. Such springs may also be used in the chains of the ballast.

A cannon, L, of proportionate caliber is placed on the deck in the center of the ship, Figs. 1 and 2. For a carriage my patent pivot-gun carriage without a retrograde recoil motion, patented in the United States March 8, 1881, may be used advantageously, as it is worked quickly and easily in all directions. The vessel can be turned by means of the anchors. Sails or special motive powers are not adapted for the floating battery, as it has to be towed into position by other ships.

Cabins and places for the crew, ammunition, and other stores, M, Fig. 1, are fitted up in the middle under the deck.

It is only intended that a small magazine is to be kept on board, which magazine is to be renewed by small ships from an isolated floating magazine.

In order to protect the crew against the weather, a light and easily-removable shed may be put up over the cannon.

For particularly important places I intend to construct the battery in the form of a ring of large dimensions, as shown in Figs. 8 and 9. This ring-battery consists of a number of independent sector parts, N, joined together—in this case six—as shown in Fig. 9. Each part carries its own cannon. In other respects the construction of the whole battery, as well as that of each part, remains the same as before described. This arrangement allows, first, of placing a great number of cannon, and, secondly, each part is separate and can be changed in case it should be badly damaged.

I claim—

1. A circular floating battery having a central well, a platform covering said well, and a gun upon the same, in combination with numerous water-tight cells or boxes arranged around said central well, and a filling of cork or similar material between said cells, substantially as and for the purposes set forth.

2. A floating battery constructed with an inner skin or double bottom and divided into separate compartments, in combination with metallic water-tight cells or boxes placed perpendicularly in said compartments, said cells or boxes being removably connected to said double bottom and to each other, substantially as set forth.

3. A floating battery divided into separate compartments containing water-tight cells or boxes, and arranged around a central well having movable ballast G, and means for changing position of the latter, substantially as set forth.

4. A combined ring-shaped floating battery consisting of separate connectible ring-sector parts containing detachably-connected water-tight cells or boxes, and forming each a platform for one or more guns, for the purpose of being used either as a combined battery or as separate batteries, all substantially as set forth.

ALFRED KRUPP.

Witnesses:
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M. S. BREWER.