6 Sheets--Sheet 1.

S. JANICKI.

Improvement in Floating-Docks.

No. 126,146. Patented April 30, 1872.

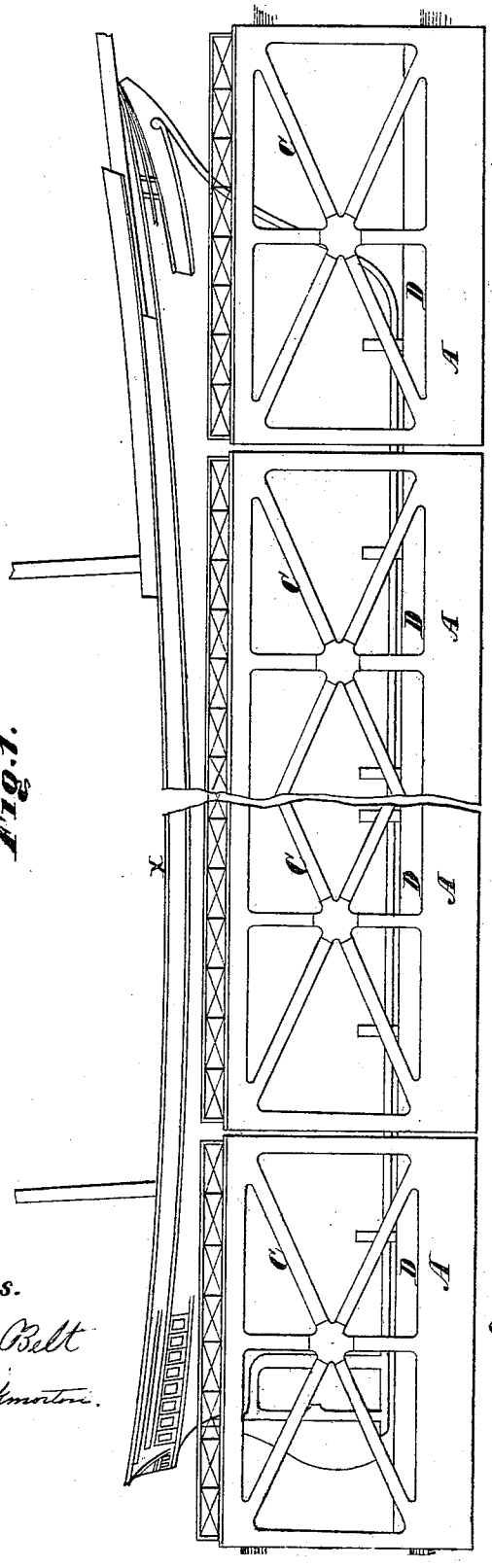


Fig. 1.

Witnesses.

Lloyd J Belt

H. W Shrockmorton.

Inventor.

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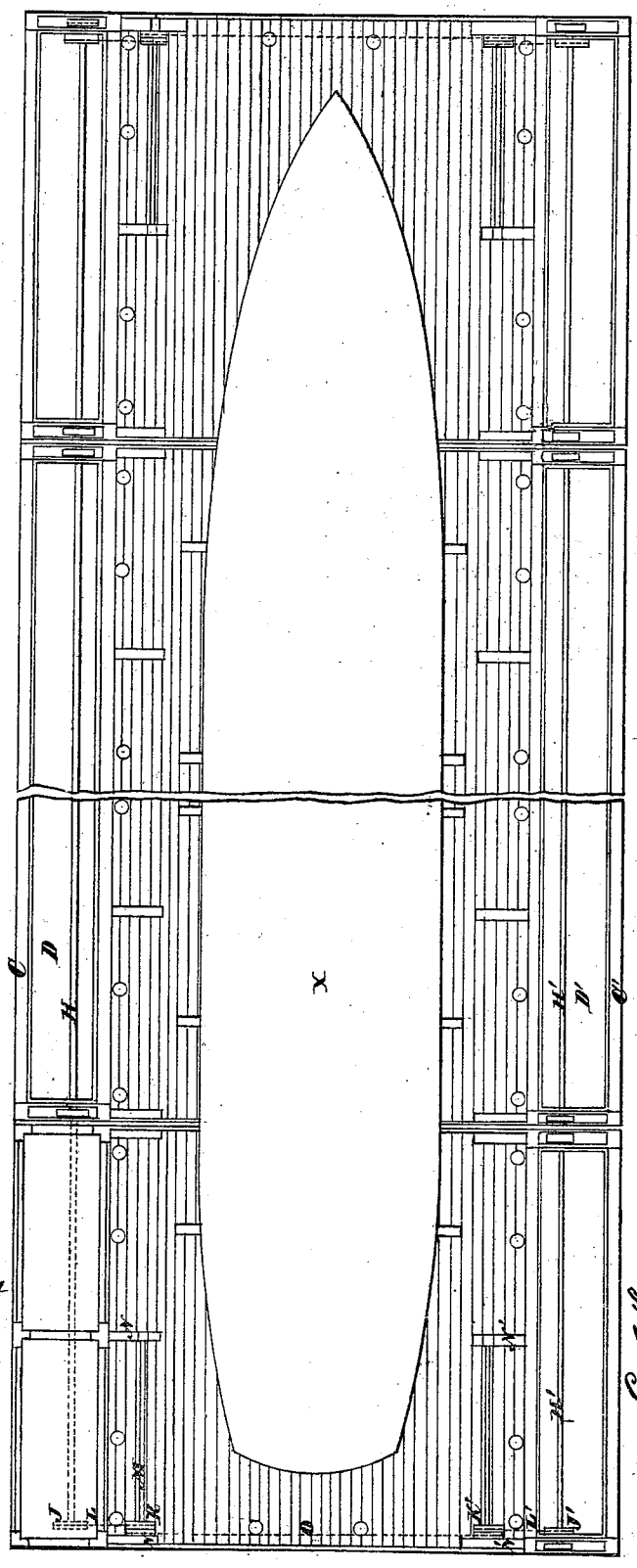


Fig. 2.

Witnesses.
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A.M. PHOTO-LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS).

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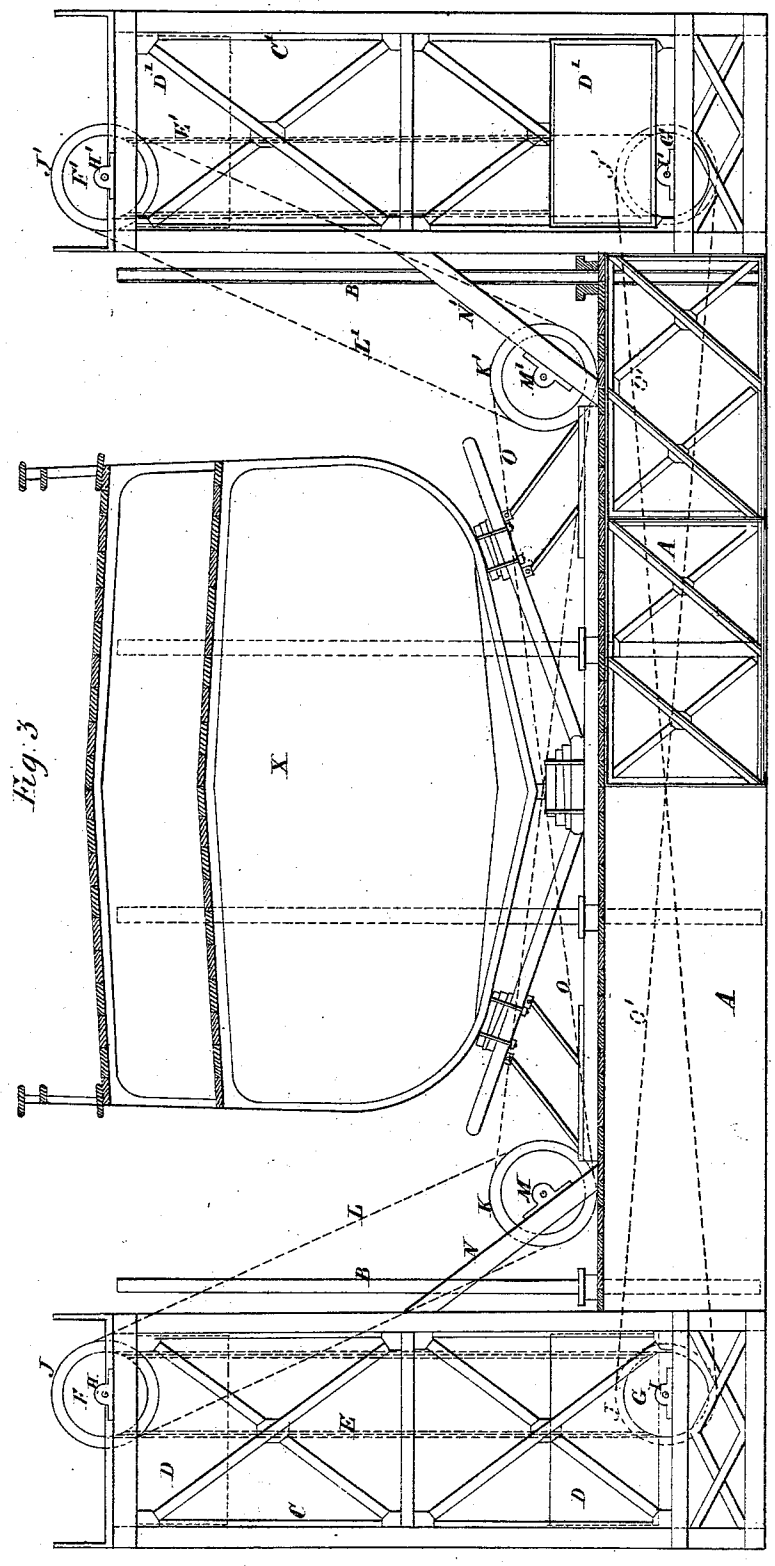


Fig. 3

Witnesses:
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6 Sheets--Sheet 4.

S. JANICKI.

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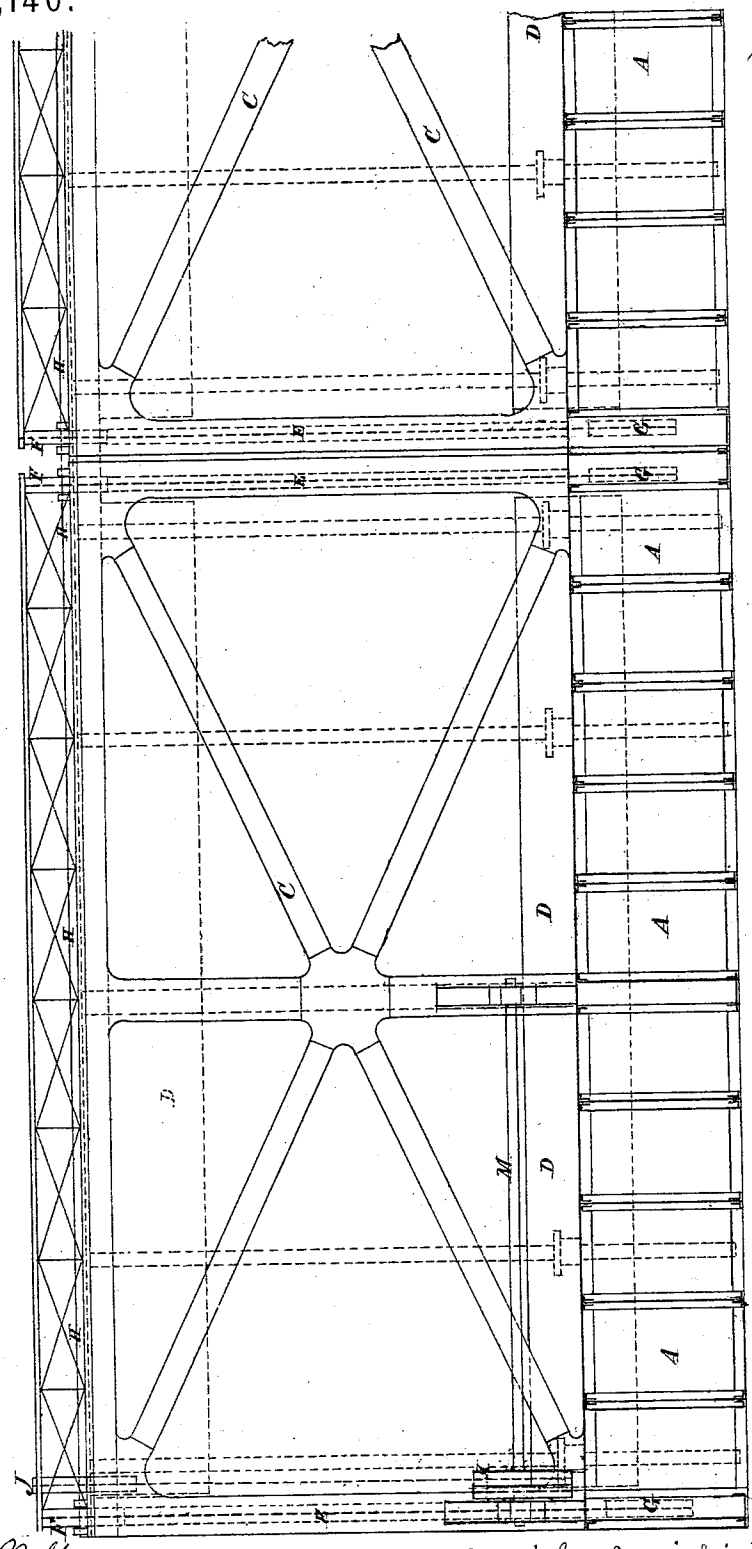


Fig. 4

Witnesses—
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6 Sheets--Sheet 5.

S. JANICKI.

Improvement in Floating-Docks.

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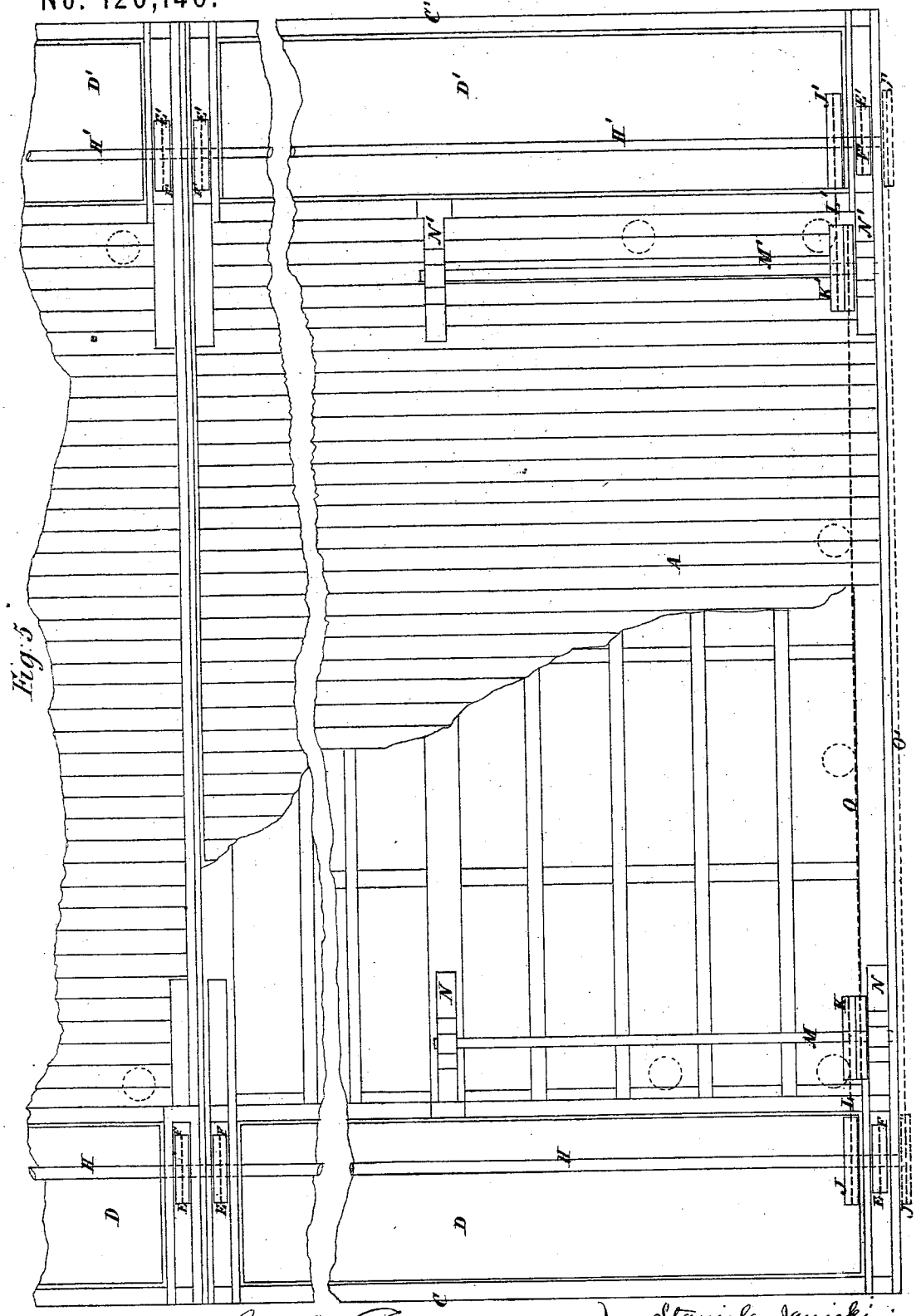


Fig. 5.

Witnesses
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H. A. Daniels.

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6 Sheets--Sheet 6.

S. JANICKI.

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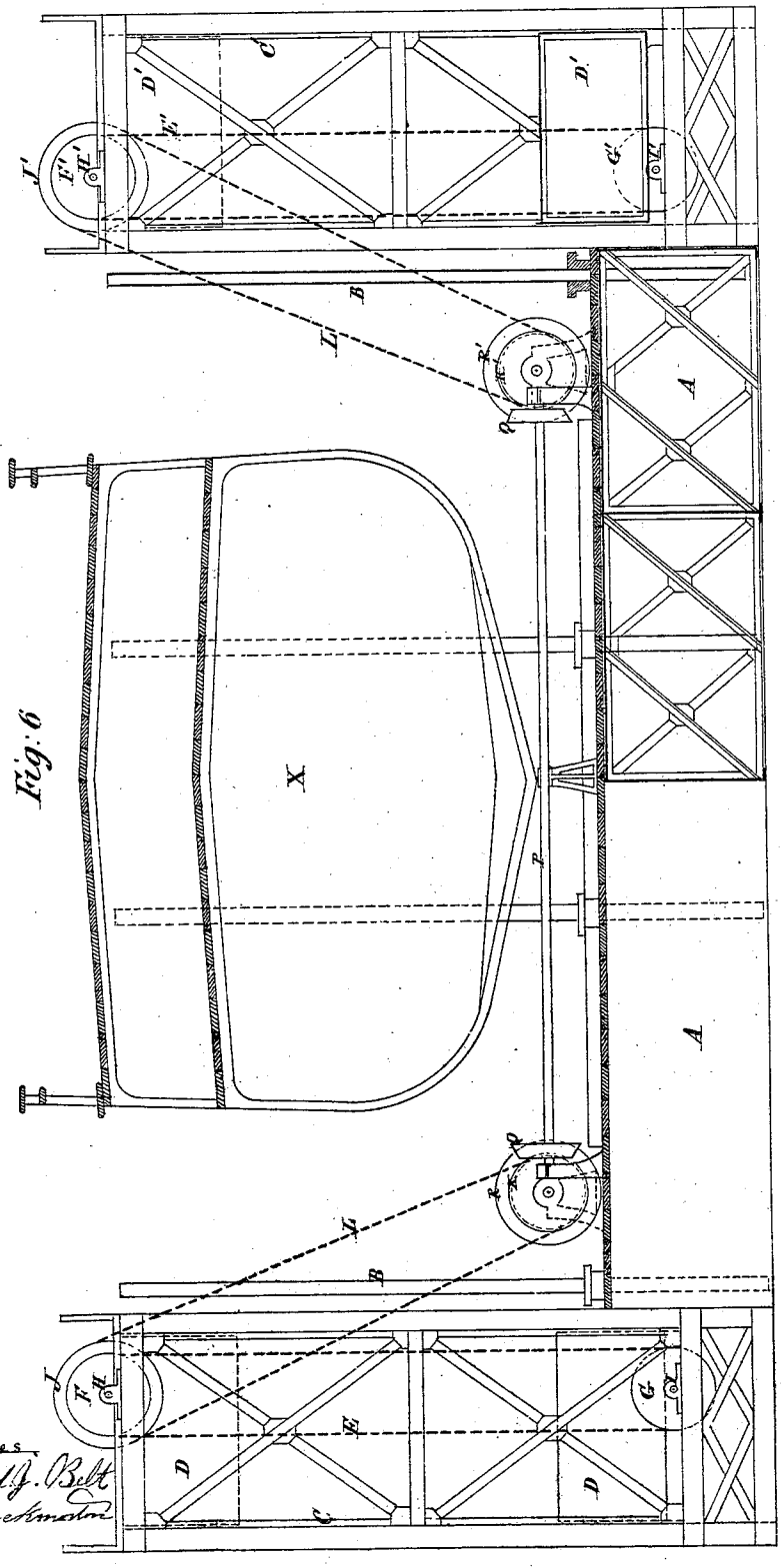


Fig. 6

Witnesses
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H. W. Shoemaker

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Stanislas Janicki
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UNITED STATES PATENT OFFICE.

STANISLAS JANICKI, OF ST. PETERSBURG, RUSSIA.

IMPROVEMENT IN FLOATING-DOCKS.

Specification forming part of Letters Patent No. 126,146, dated April 30, 1872.

To all whom it may concern:

Be it known that I, STANISLAS JANICKI, of St. Petersburg, in the Empire of Russia, have invented "An Improved Construction of Floating-Docks;" and do hereby declare that the following description, taken in connection with the accompanying sheets of drawing, hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvement, by which my invention may be distinguished from others of a similar class, together with such parts as I claim and desire to secure by Letters Patent—that is to say:

My invention has reference to an improved construction of floating-docks for which I have already applied for Letters Patent of the United States.

My invention consists of an improved arrangement of the lateral floats for imparting stability to the dock. For this purpose I fix to each side of the hollow metal pontoon or pontoons (which support the vessel to be raised, and are constructed and operate as described in the specification of my aforesaid application for Letters Patent) vertical frames of such a height as to project beyond the surface of the water when the dock is immersed in its lowest position. These frames serve as guides to a series of hollow rectangular metal floats, which are always situated at the surface of the water, and which work up and down between the said guide-frames as these rise and fall with the pontoon. These floats are connected at the ends to endless vertical chains passing over toothed or indented pulleys fixed on shafts carried in bearings at the upper and lower ends of the vertical guide-frames, so that in moving up and down in the latter the floats impart rotary motion to the said pulleys and shafts. Either the upper or the lower shafts on each side of the dock are made to extend the entire length of the dock, and have at one end, or at both ends, or at other points in their length, other indented pulleys fixed thereon, and an endless crossed chain passes either above or below the pontoon from the pulley on the shaft on the one side of the dock to the pulley on the shaft on the other side of the dock, so as to gear these two shafts together in such manner that the rotation of the one shaft on the one side of the dock necessitates a corresponding rotation of the shaft on the other side of the dock. Or the pulleys with the crossed chain may be on separate shafts on the pontoon of the dock, which pulleys are connected to pulleys on the upper shafts on the guide-frames by other endless chains; or, again, in place of a crossed endless chain for gearing together the said shafts on the opposite sides of the dock, a transverse shaft may be employed having bevel-wheels in gear with other bevel-wheels on the two opposite longitudinal shafts.

From the above-described arrangement it will be seen that as the pontoon, together with the lateral guide-frames, is caused to rise or descend in the water by the forcing of air into or out of the pontoon, (as described in my said previous specification,) the said floats on each side of the dock will in every position of the latter be caused to remain parallel to each other and to the deck of the pontoon, on account of the before-described gearing together of the longitudinal shafts, to which they are connected by the first-named endless chains, and thus the stability of the dock in every position will be insured.

When the dock is in its lowest immersed position the side floats will be situated at the top of the guide-frames, and when the dock is in its highest position they will be situated at the bottom of the guide-frames.

Having thus set forth the nature of my invention, I will now proceed more particularly to describe the manner of performing the same, for which purpose I shall refer to the accompanying drawing, on which—

Figure 1 shows a side elevation of my improved construction of floating-dock. Fig. 2 shows a plan of the same. Fig. 3 shows an enlarged part end elevation and part transverse section. Fig. 4 shows an enlarged part longitudinal section, and Fig. 5 shows an enlarged part plan.

The same letters of reference indicate the same parts in each of the figures.

A A is the longitudinal pontoon of the dock, formed of one or more air-tight chambers, open at their under sides, provided with air-escape pipes B B, and constructed and operated for receiving and raising the vessel X in a similar manner to that described in the specification to my before-mentioned previous patent.

To each side of the pontoon A are fixed the vertical guide-frames C C′, between which the lateral floats D D′ work vertically up and down, as the dock descends or ascends in the water, the floats being always situated at the water-line. These floats consist of rectangular hollow metallic vessels, closed in an air-tight manner, there being, by preference, several such floats on each side in the length of the dock, as shown. Each of the floats D D′ is attached at both ends to endless pitch-chains (or ordinary chains) E E E′ E′, passing over pitch-wheels or indented pulleys F G F′ G′, fixed on shafts H I H′ I′, carried in bearings at the upper and lower ends of the guide-frames C C′. The upper shafts H H′ extend the whole length of the dock, and carry at one end, or at both ends, or at intermediate points, one or more other pitch-wheels or indented pulleys, J J′, over which, as also over other pitch-wheels or pulleys K K′, pass other pitch-chains L L′. The pitch-wheels K K′ are fixed on shafts M M′, carried in bearings on stays N N′ on the deck of the pontoon A; and they are geared together by a crossed pitch-chain, O, passing transversely across the pontoon, and over a second groove on the pitch-wheels K K′; or separate pitch-wheels may be provided.

From this arrangement it will be seen that the floats D on one side of the dock are geared to the floats D′ on the other side in such manner that no vertical motion of the floats D can take place without a corresponding vertical motion in the same direction of the floats D′, so that whatever position the floats may assume in the guide-frames C C′, consequent upon the ascending or descending of the dock, they will always remain parallel to each other and to the floor of the pontoon A, thus insuring the stability of the dock in whatever position it may be in the water. Assuming the dock to be at its lowest point of immersion, the floats D D′ will be situated at their highest position in the guide-frames, as shown in dotted lines at Fig. 3.

For raising the dock, air is forced into the pontoon A by means of air-pumps, by preference placed on a separate vessel, as described in my said previous specification; and as the dock is thus caused to ascend in the water, carrying the vessel X with it, the floats D D′, which always remain at water-line, cause the pitch-wheels or pulleys F F′ J J′ K K′ to revolve by means of the chains E E′, L L′, and O, the wheels or pulleys on the one side of the dock turning in a contrary direction to those on the other side, which the crossed chain O, connecting the wheels or pulleys on either side, permits of. This motion continues until the dock has ascended to its highest position, when the floats D D′ will be in the position shown in full lines in Fig. 3. The action of the floats on the descent of the dock takes place in the same manner, the motion of the wheels or pulleys and chains being reversed. By this arrangement, in whatever position the dock may be, its stability, both transversely and longitudinally, is insured by the fixed relative position of the floats, which obliges them always to remain in a plane parallel with that of the floor of the pontoon A. As before stated, the lower wheels or pulleys on each side of the dock may be geared together, instead of the upper ones, by means of a crossed endless chain, as indicated in dotted lines at O′, Figs. 3 and 5, such chain being made to pass direct over the pulleys J J′, fixed on the ends of the shafts G G′, so as to project beyond the end of the dock, whereby the crossed chain is brought below the deck of the pontoon A so as to leave the same perfectly clear for the vessel to be docked; or the gearing together of the pulleys K K′ of the first-described arrangement may be effected, as shown in the transverse section at Fig. 6, by means of a transverse shaft, P, with bevel-wheels Q Q′ in gear with bevel-wheels R R′ on the shafts of the pulleys K K′.

Having thus described the nature of my said invention, and in what manner the same is to be performed, what I claim is—

Arranging the lateral floats D D′ to work vertically up and down in guide-frames C C′, fixed to the sides of the pontoon A of the dock, the floats on the one side of the dock being geared to the floats on the other side by means of a system of endless chains passing over wheels or pulleys, or by a transverse shaft and bevel-wheels in gear with the pulley-shafts of the floats, the whole operating for the purpose of maintaining the stability of the dock, substantially as hereinbefore set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses this 5th day of July, A. D. 1871, at St. Petersburg, Russia.

STANISLAS JANICKI.

Witnesses:
HILANÈ BRÜHL,
CHARLES MLODECKI.