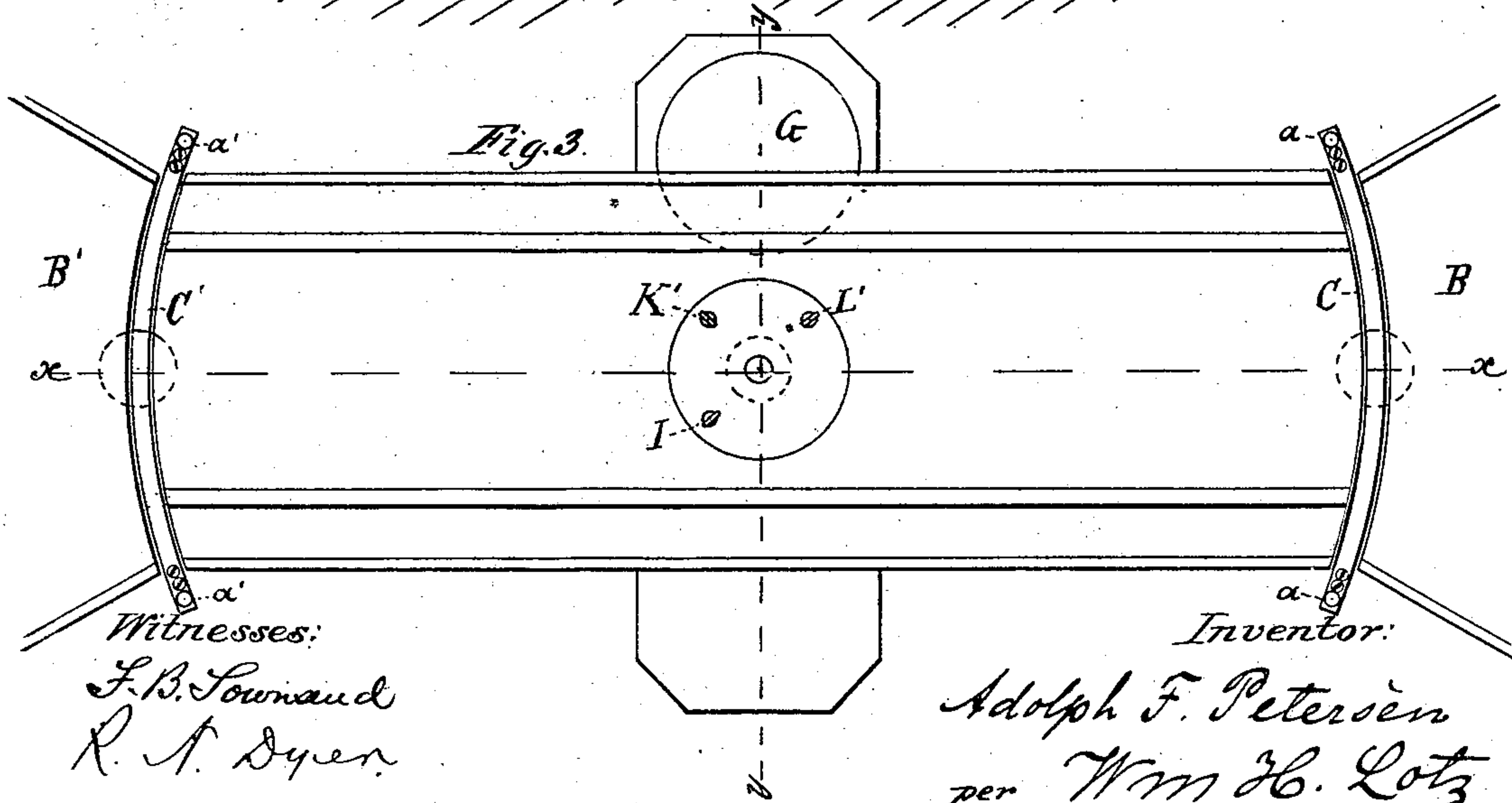
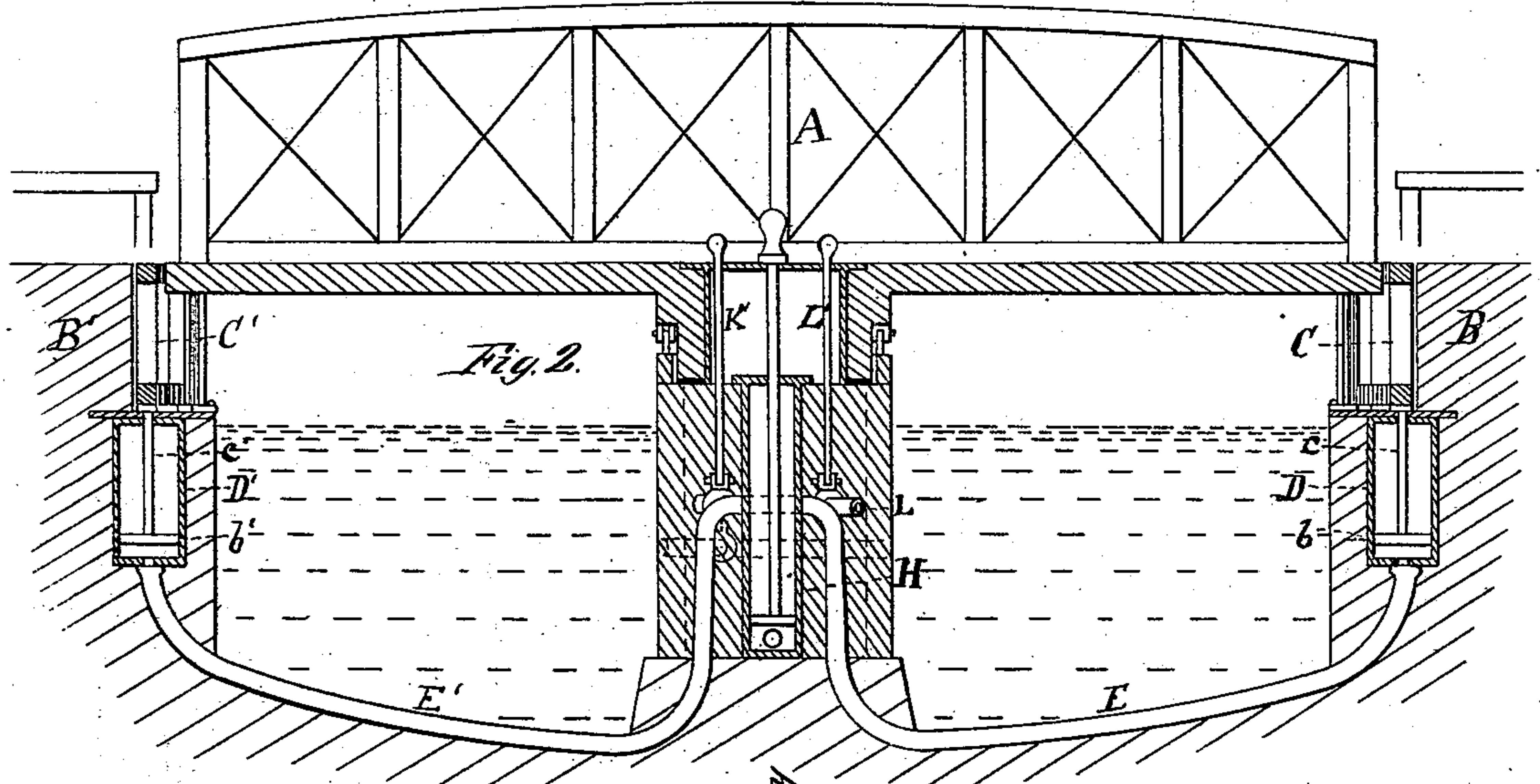
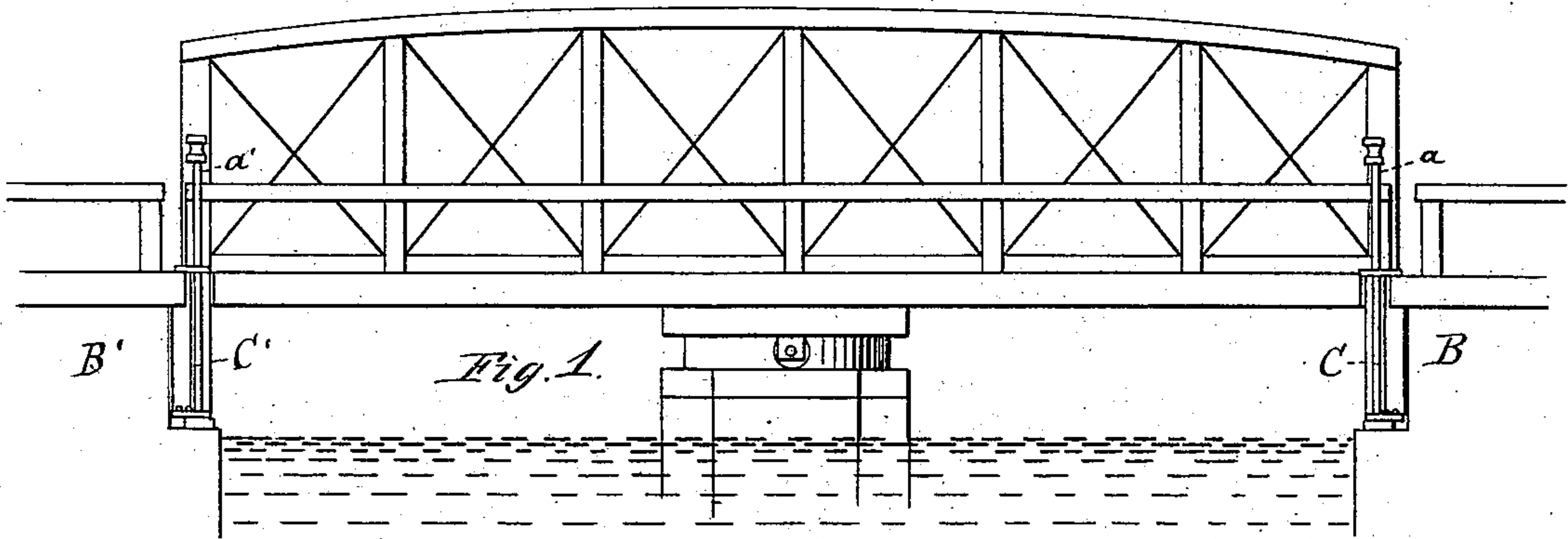


A. F. PETERSEN.
Bridge-Gate.

No. 227,125.

Patented May 4, 1880.



Witnesses:
J. B. Lounaud
R. A. Dyer.

Inventor:
Adolph F. Petersen
per Wm H. Lotz
Attorney

A. F. PETERSEN.
Bridge-Gate.

No. 227,125.

Patented May 4, 1880.

Fig. 4.

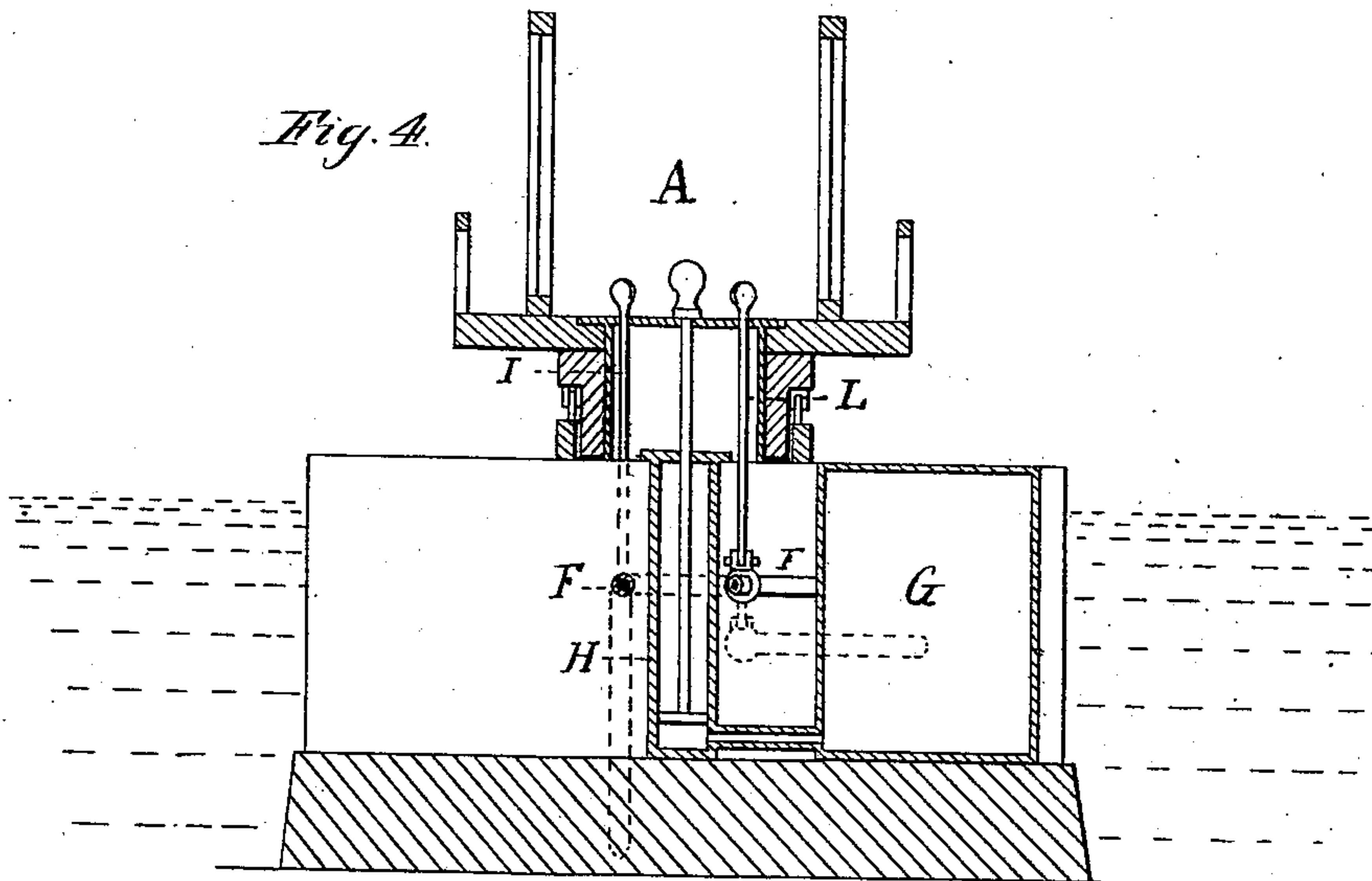
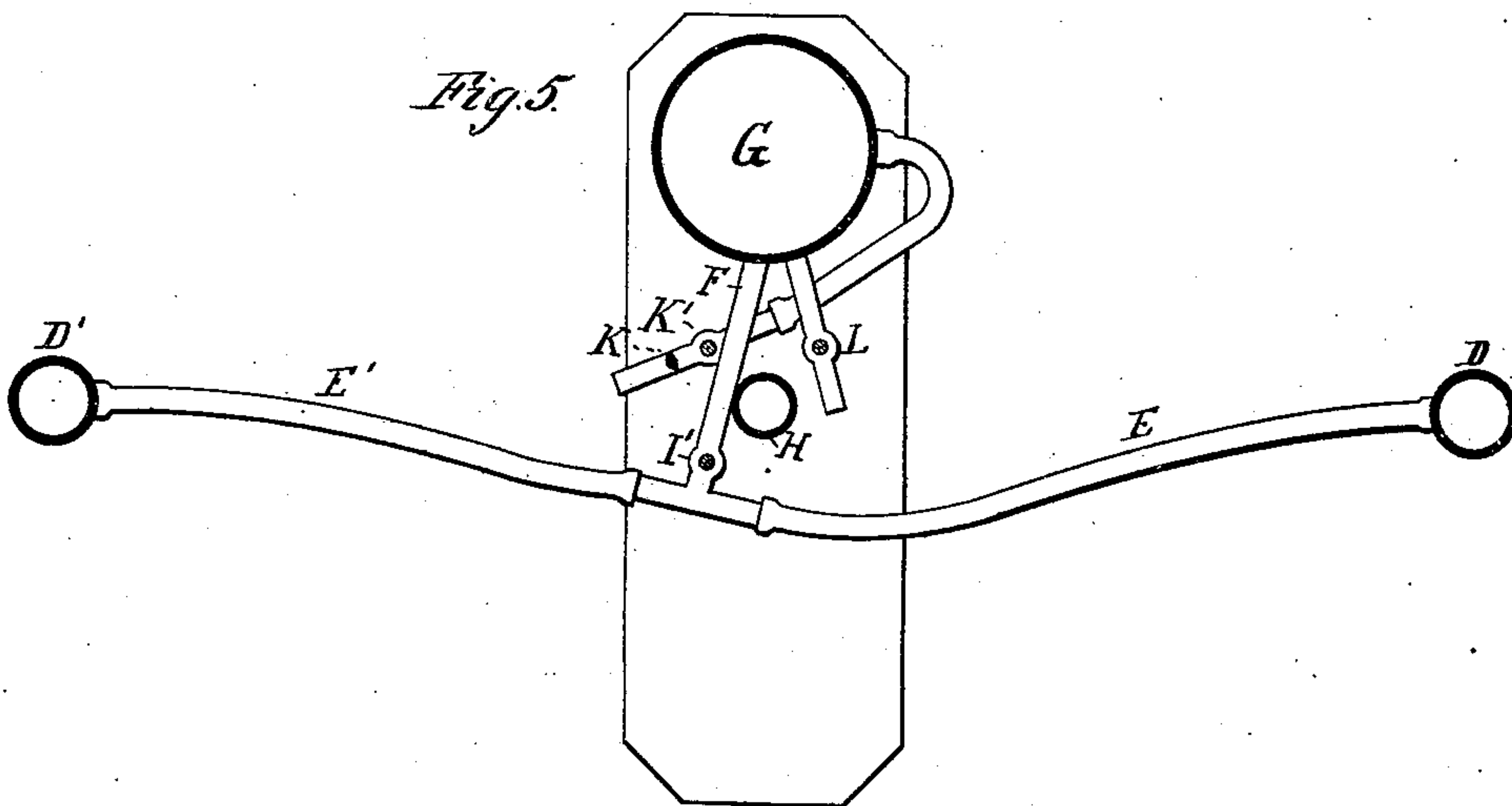


Fig. 5.



Witnesses:

*F. B. Townsend
R. A. Dyer.*

Inventor:

Adolph F. Petersen

per Wm H. Lotz

Attorney

UNITED STATES PATENT OFFICE.

ADOLPH F. PETERSËN, OF CHICAGO, ILLINOIS.

BRIDGE-GATE.

SPECIFICATION forming part of Letters Patent No. 227,125, dated May 4, 1880.

Application filed December 13, 1879.

To all whom it may concern:

Be it known that I, ADOLPH F. PETERSËN, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Bridge-Gates, of which the following is a specification.

The object I have in view is to produce simple, cheap, and efficient means for closing and opening the gates on the abutments of swinging bridges, by which means the gates will be wholly under the control of the bridge-turners, and can be operated with certainty by them at any time from the draw-span without regard to the position of such draw-span.

My invention therein consists in the means for operating the gates by pneumatic pressure; in the devices for operating the gates from the middle of the draw-span without regard to its position relative to the abutments on which the gates are situated; in the combination, with the gate-operating devices, of a pneumatic alarm; and, further, in the various combinations of the operative parts, as fully hereinafter explained.

In the accompanying drawings, forming a part hereof, Figure 1 is a side elevation of the bridge; Fig. 2, a vertical longitudinal section on line *x x* in Fig. 3; Fig. 3, a top view; Fig. 4, a vertical cross-section on line *y y* in Fig. 3, and Fig. 5 a plan view of the air-reservoir and its connections.

Like letters denote corresponding parts in all the figures.

A represents the swinging draw-span of the bridge, and B B' the abutments. Against the faces of the abutments are placed vertically-sliding gates C C', which are guided in their movement by standards *a a'* rising from the abutments at the ends of the gates. Beneath the gates, in the abutments, are vertical air-pressure cylinders D D', having solid pistons *b b'* working therein and connected by rods *c c'* with the centers of the gates. The pistons *b b'* have sufficient length of stroke to raise the gates above the abutments for closing the approaches to the draw-span, and to allow them to drop down even with or below the top of the abutments. The cylinders D D' are connected by pipes E E' extending along the bottom of the river with each other, and with

a branch pipe, F, which extends to the air-reservoir G, situated upon the central pier of the bridge. The reservoir is supplied with air under pressure by an air-pump, H, placed beneath the center of the draw-span, so as not to be affected by the movement of such draw-span, and so as to be always capable of operation no matter what the position of the draw-span. The lever or other device for operating the pump can be made removable, or can be constructed to fold into a cap-covered recess, and will not be injured by teams passing over the bridge; or the pump can be situated or operated close to one of the trusses to the draw-span and be wholly out of the way.

The movement of the gates is controlled by a rod, I, operating a three-way valve or cock, I', in the branch pipe F, so that by turning such valve air will be admitted from the reservoir into the cylinders and the gates will be raised, or the pressure can be relieved in the cylinders to lower the gates without allowing air to escape from the reservoir.

An alarm-whistle, K, is connected with the air-reservoir, and is operated by a valve-rod, K', from the draw-span. By means of this whistle the bridge-turners can sound an alarm before opening or closing the gates. I propose in some cases to use two whistles secured to the ends of pipes extending from the reservoir to opposite ends of the draw-span, so that the alarm can be more clearly heard from both approaches to the bridge. The pressure in the air-reservoir can be relieved at any time by a valve, L, which is operated by a rod, L', from the draw-span.

It will be seen that by these means the gates can be raised before the draw-span is moved, and need not be opened till the draw-span is wholly closed, which securities against accident are not possible with bridge-gates operated by the movement of the draw-span. In addition, by my invention the gates can be operated with certainty, and the parts being few and simple will not easily get out of order.

The pressure in the air-reservoir can be maintained by the bridge-turners, who have ample time to attend to the same between the periods of opening the draw-span.

What I claim as my invention is—

1. In a draw-bridge, the gates on the abutments moved by pneumatic pressure controlled from the draw-span, substantially as described.

5 2. In a draw-bridge, the combination of the gates on the abutments, the draw-span, and devices, substantially as described, for operating the gates from the draw-span independent of the movement of such draw-span.

3. In a draw-bridge, the combination of the gates on the abutments, the draw-span, and a pneumatic connection between the gates and draw-span, whereby the gates are operated by pneumatic pressure from the draw-span independent of the movement of such draw-span, substantially as described.

5 4. In a draw-bridge, an air-reservoir on the

central pier, for supplying pressure to operate the gates on the abutments, in combination with an alarm-whistle connected with such reservoir and controlled from the draw-span, substantially as described and shown. 20

5. In a draw-bridge, the combination of the vertically-sliding gates on the abutments, the air-cylinders below such gates, having pistons connected with the gates, the air-pump and reservoir on the center pier, and connections between the air-reservoir and the said cylinders, substantially as described and shown. 25

ADOLPH F. PETERSEN.

Witnesses:

R. N. DYER,

OLIVER W. MARBLE.