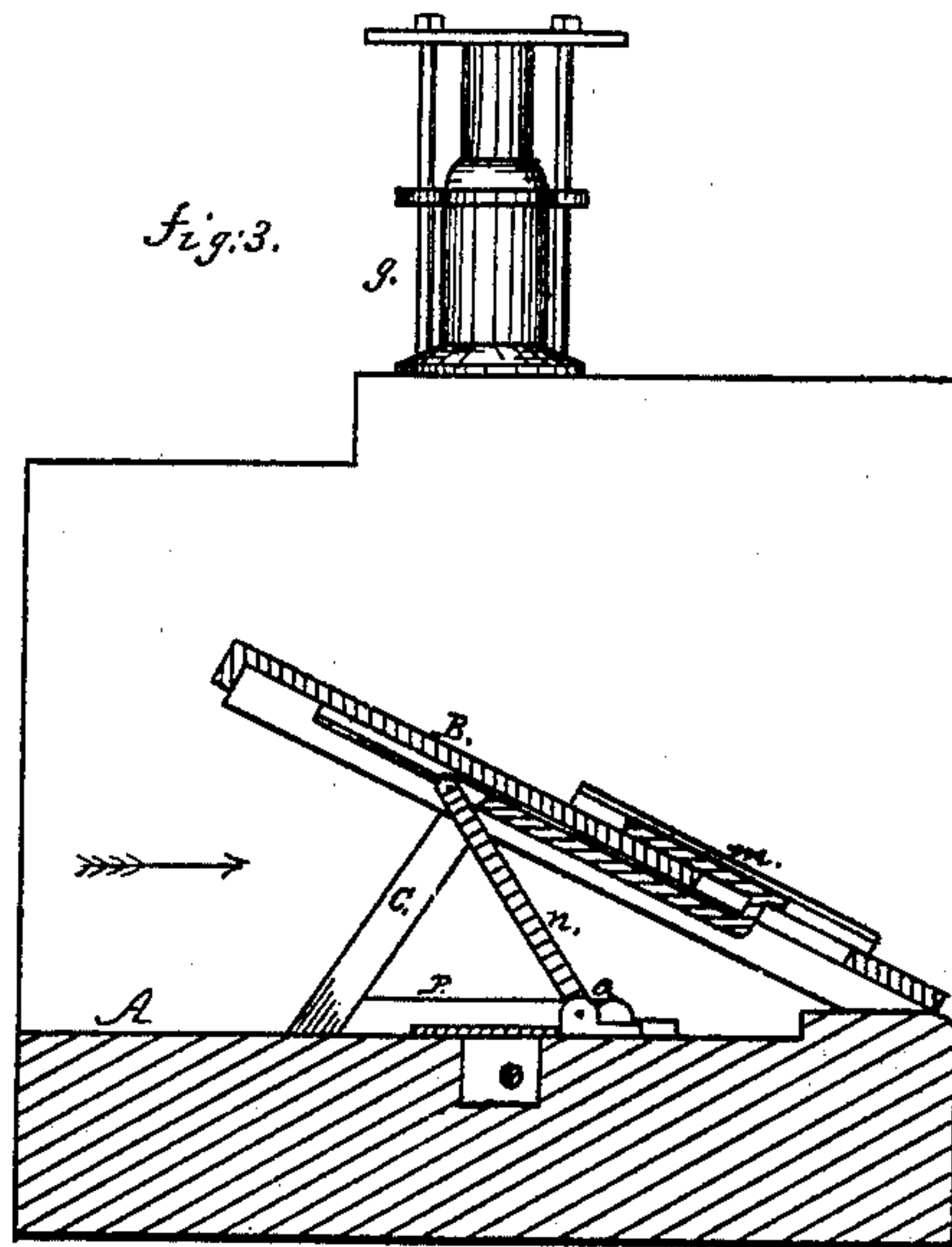
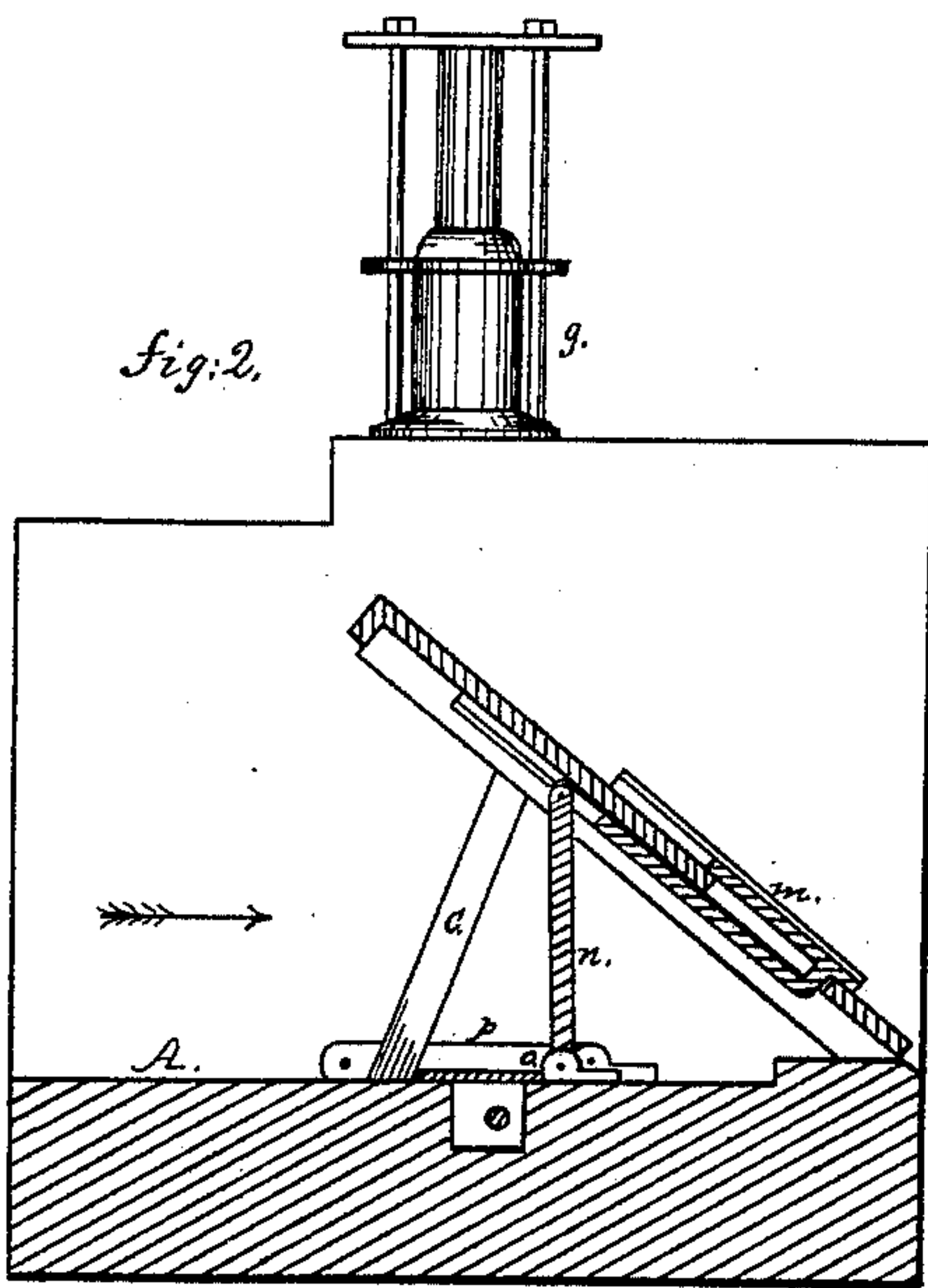
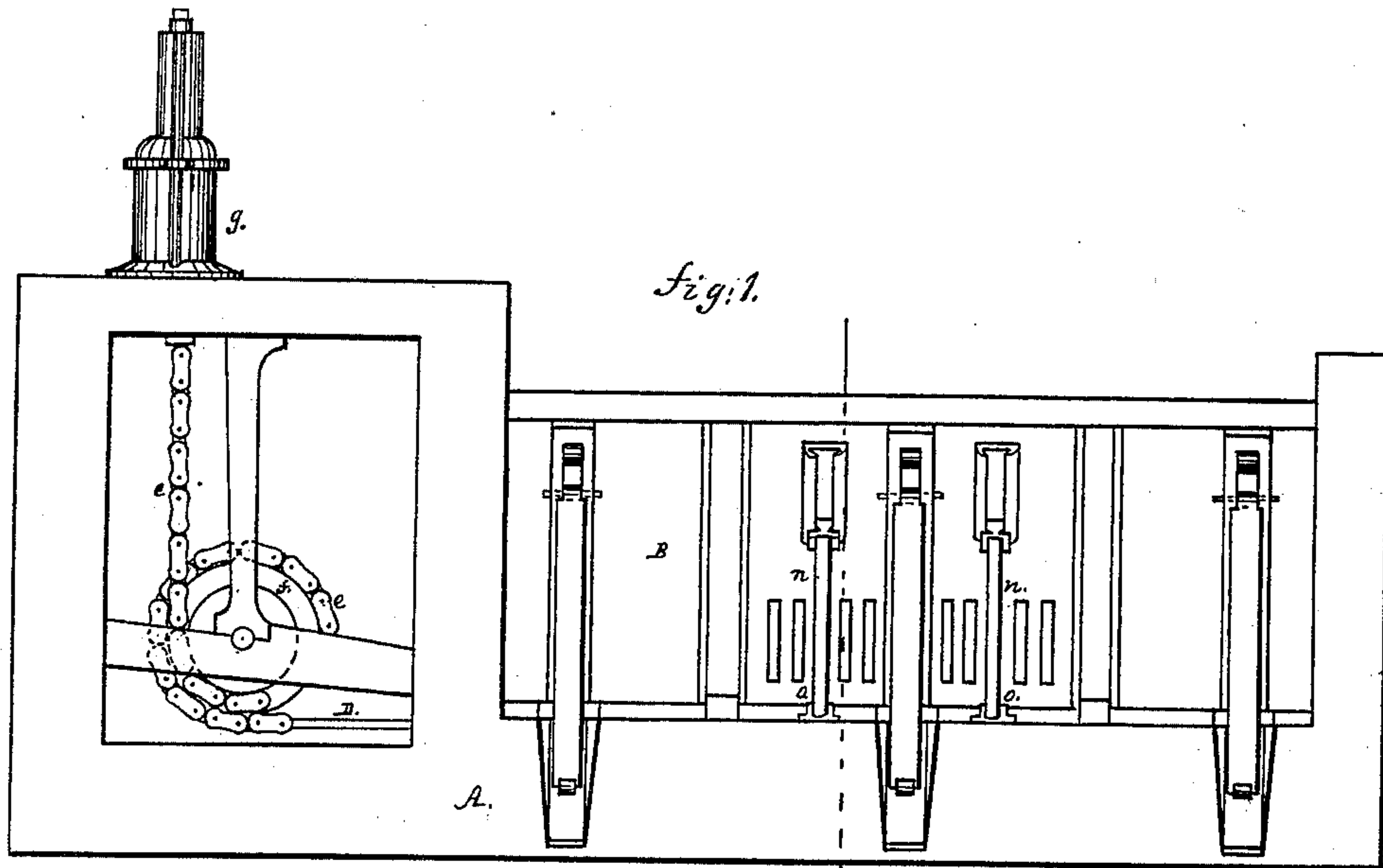


W. REED.
ADJUSTABLE DAM.

No. 176,054.

Patented April 11, 1876.



Witnesses.

A. C. Johnston.
James I. Johnston

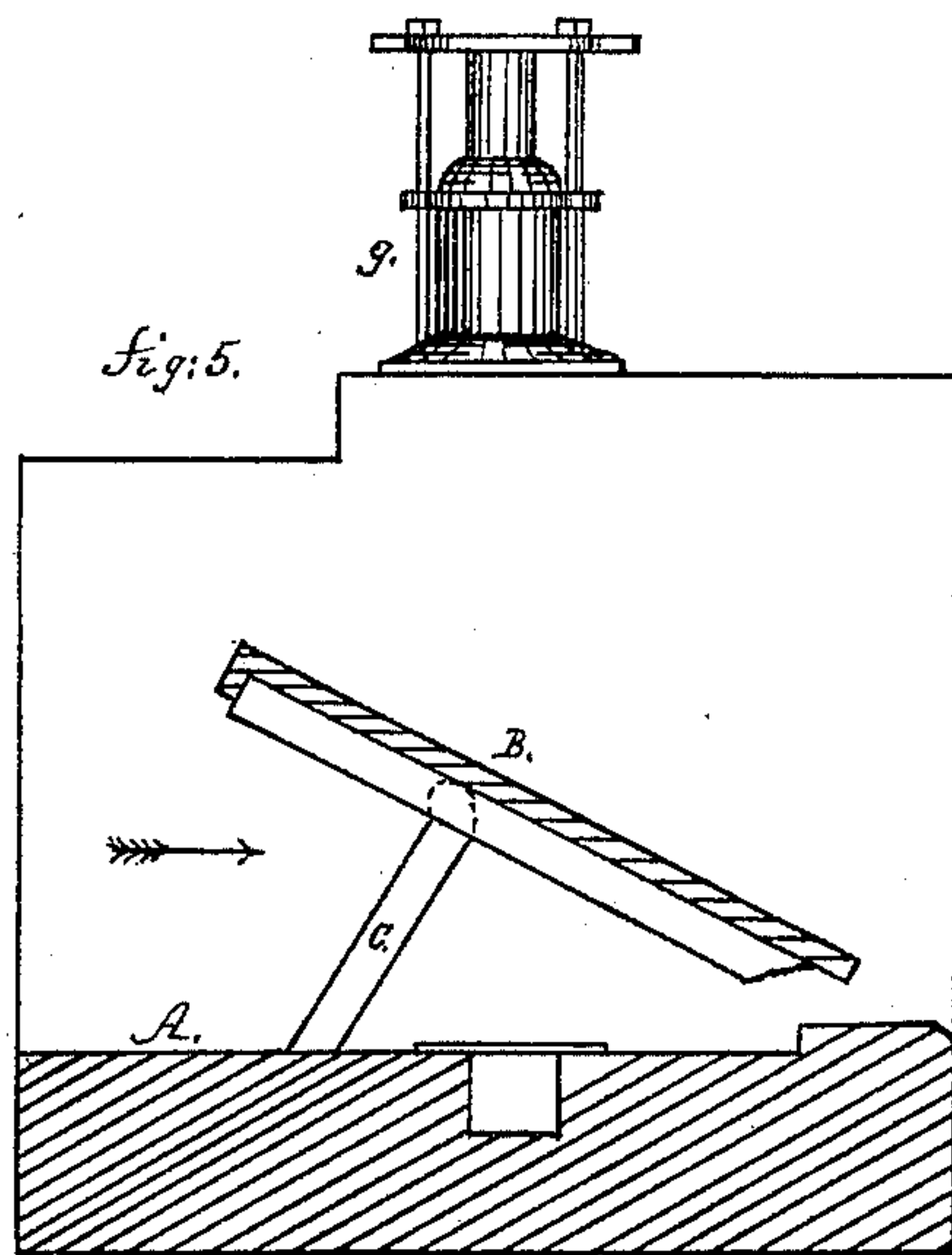
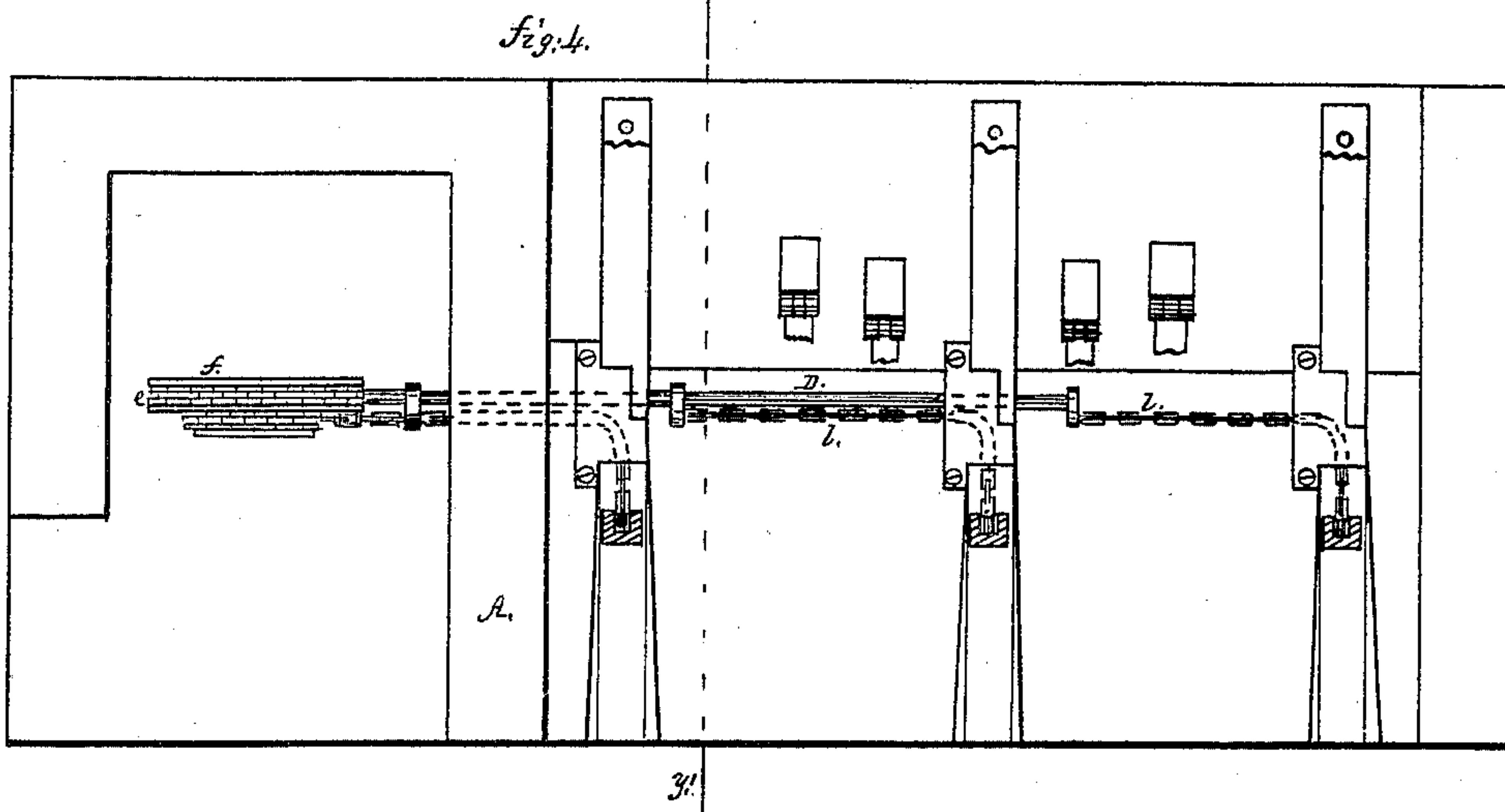
Inventor.

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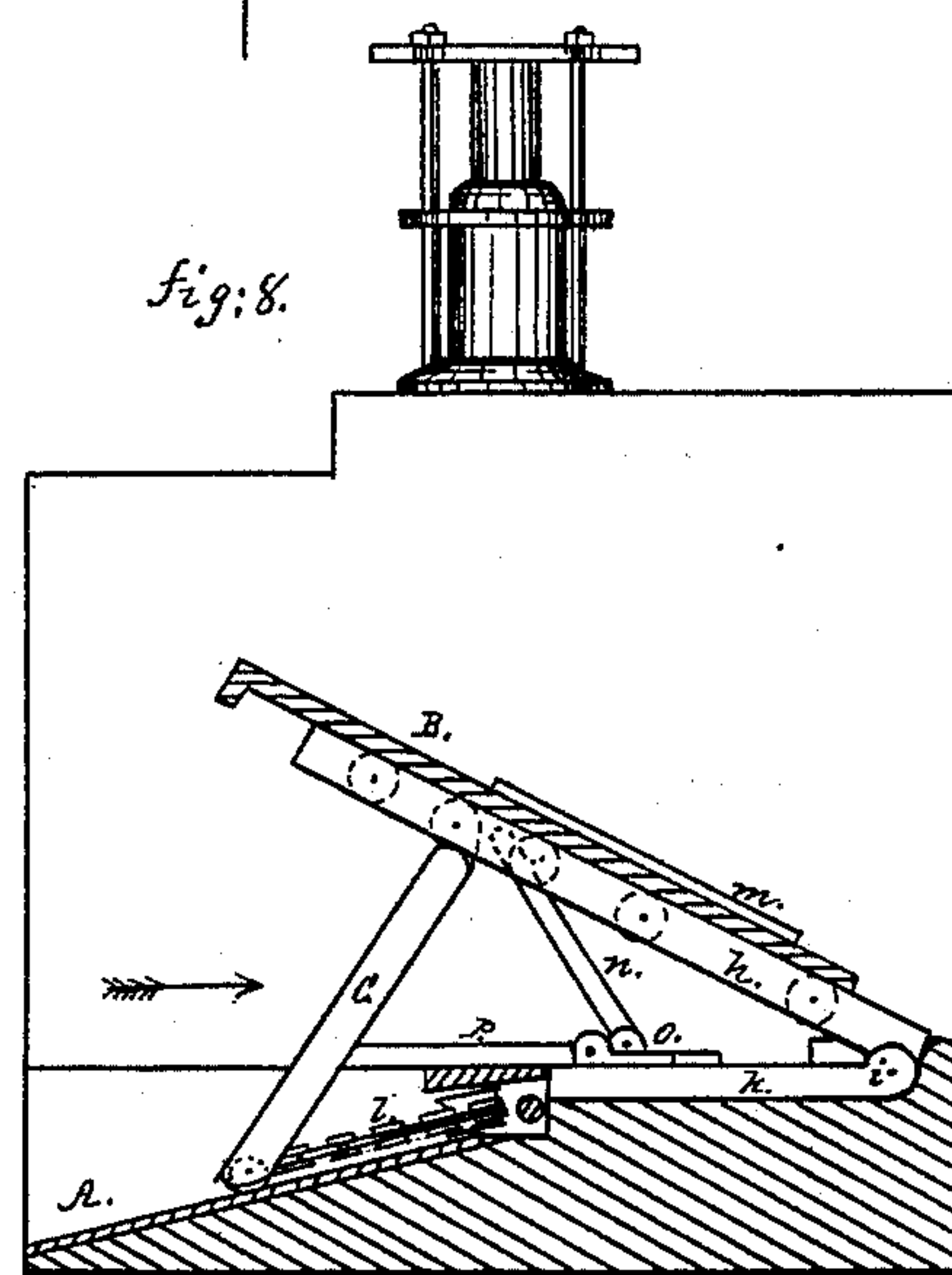
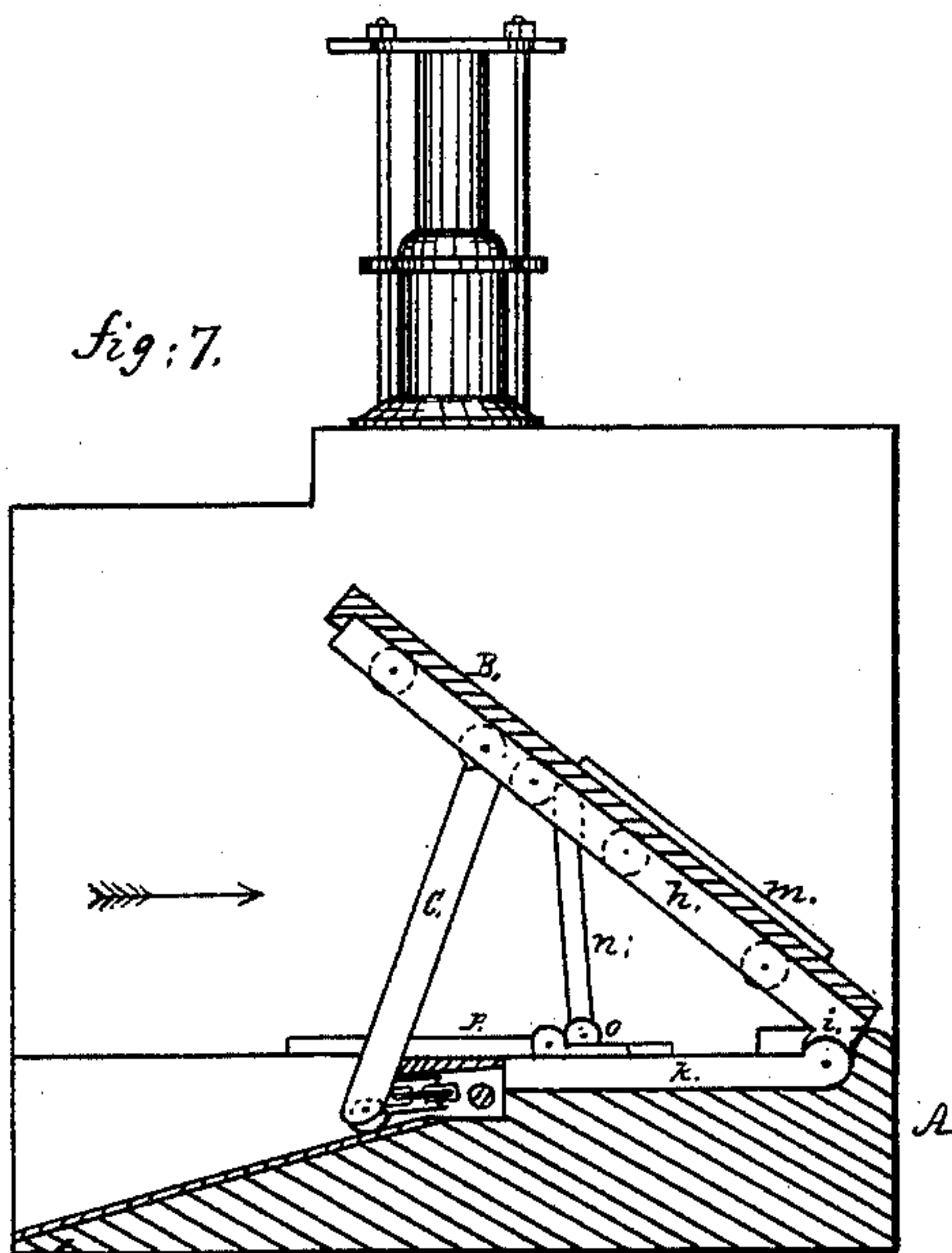
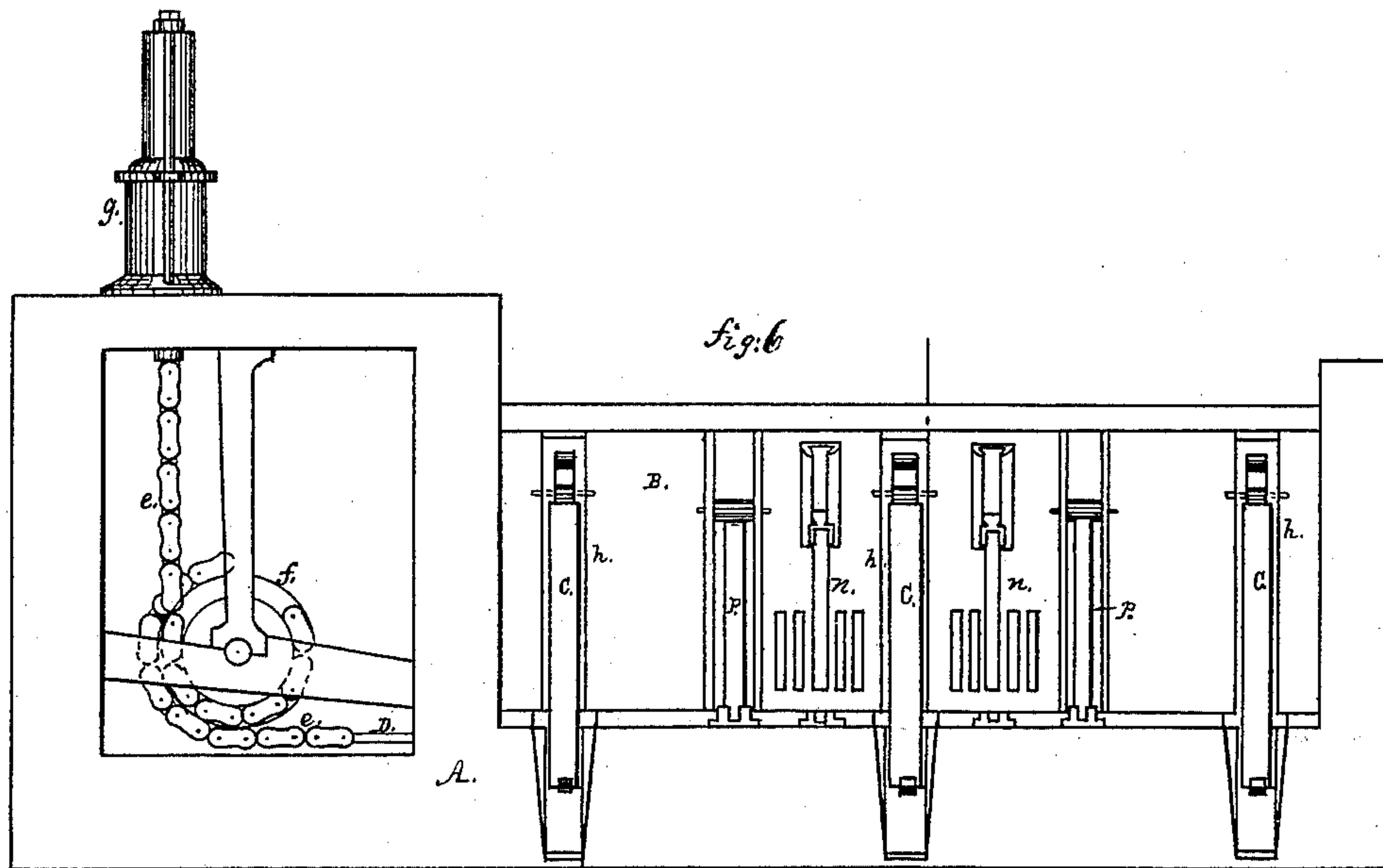
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UNITED STATES PATENT OFFICE.

WILLIAM REED, OF SEWICKLY, PENNSYLVANIA.

IMPROVEMENT IN ADJUSTABLE DAMS.

Specification forming part of Letters Patent No. **176,054**, dated April 11, 1876; application filed February 29, 1876.

To all whom it may concern :

Be it known that I, WILLIAM REED, of Sewickly, in the county of Allegheny, and State of Pennsylvania, have invented a new and useful Improvement in Dams for rivers and other streams of water; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of references marked thereon:

My invention relates to an improvement in dams for rivers and other streams of water, and consists in constructing such dams with a pivoted breast susceptible of being raised and lowered through the medium of levers, shaft, and hydraulic engine, said breast, levers, shaft, and engine operating with relation to each other in the manner hereinafter described.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation. In the accompanying drawings which form part of my specification—

Figure 1 is a front elevation of my improvement. Fig. 2 is a transverse section at line *y* of Fig. 1, representing the breast of the dam partly raised. Fig. 3 is a transverse section at line *y* of Fig. 1, and represents the breast of the dam raised to its full height. Fig. 4 represents a plan of the dam with the breast and hydraulic engine removed. Fig. 5 is a transverse section of the dam at line *y'* of Fig. 4, representing a portion of the support for the breast broken away for the purpose of representing the opening at the lower edge of the breast when the dam is partly lowered. Fig. 6 is a front elevation of the dam representing the breast so connected that it will move up and down on its supports when raising and lowering the breast. Fig. 7 is a transverse section at line *y''* of Fig. 6, representing the breast in position when it is raised. Fig. 8 is a transverse section at line *y''* of Fig. 6, representing the breast partly lowered, showing the upward movement of it on its support.

In the accompanying drawings, A represents the masonry or frame-work of the dam, B the

breast, which is secured to supports *h*, which are pivoted at *i*, to stays *k*. To the supports *h* are pivoted levers C, the lower ends of which are provided with a swivel to which are attached the chains *l*, to which is connected a shaft, D, to one end of which is attached a chain, *e*, which is wound upon a wheel, *f*, the other end of the chain *e* being attached to the piston of the hydraulic engine *g*. *m* represents gates arranged in the lower edge of the breast, which gates are connected to levers *n*, the lower ends of which are pivoted to the framework or masonry of the dam as indicated at *o*. The upper end of the lever *n* is pivoted to a slide connected to the gates *m*, in such manner that in lowering the breast the gates will open, thereby relieving the breast *b* from pressure, and thus allow sand and other *débris* which may collect at the lower edge of the breast to be washed out and carried off through the outgoing current of water passing through said gate. The gates *m* are closed through the medium of said levers *n* by the raising of the breast of the dam. In some rivers or streams of water it may be necessary to have the breast so arranged with relation to its supports that the breast will move upward on lowering it, thereby allowing the accumulated matter at the lower edge of the breast to be flooded away by the outgoing current passing under the lower edge of the breast; in such case the breast B is attached to levers *p*, pivoted to the base of the framework A at their lower ends, their upper ends being attached and pivoted to the breast of the dam, so that in lowering the breast it will move upward on its supports, and in raising the breast it will move downward on its supports so as to close the channel.

The operation of my improvement, briefly stated, is as follows: The hydraulic engine being put in motion, the upward movement of its piston will draw upon the chain *e*, which will rotate the wheel *f*, and cause the chain *e*, wound around it to draw upon the shaft D, which will cause it to move at right angles to the levers C, drawing the lower end of them towards the shaft through the medium of the

chains *l*, connecting the lower ends of the levers with the shaft. The downward movement of the piston of the hydraulic engine *g*, combined with the pressure of water upon the breast, will lower it.

Having thus described my improvement, what I claim is—

1. In a dam, a pivoted breast raised and lowered through the medium of levers operated by a shaft, *D*, drawn longitudinally at right angles to said levers, substantially as herein described, and for the purpose set forth.

2. In a dam, a breast provided with gates which are opened and closed through the medium of levers made operative by the raising and lowering of the breast of the dam, sub-

stantially as herein described and for the purpose set forth.

3. In a dam, a pivoted breast raised and lowered through the medium of levers and shaft operated by a hydraulic engine, substantially as herein described and for the purpose set forth.

4. In a dam, the combination of the pivoted breast *B*, lever *C*, shaft *D*, chain *e*, wheel *f*, and hydraulic engine *g*, arranged and operating with relation to each other, substantially as herein described and for the purpose set forth.

WILLIAM REED.

Witnesses:

A. C. JOHNSTON,
JAMES J. JOHNSTON.