Sheet. 1.

# John A. Wood. Adjustable Dam for Slack Water.

117028 PATENTED JUL 11 1871

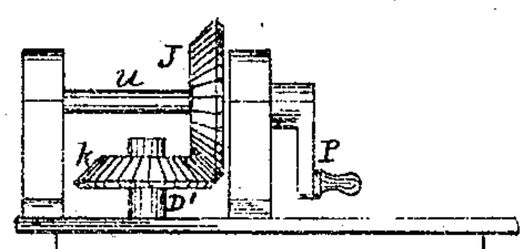



Fig. 1.

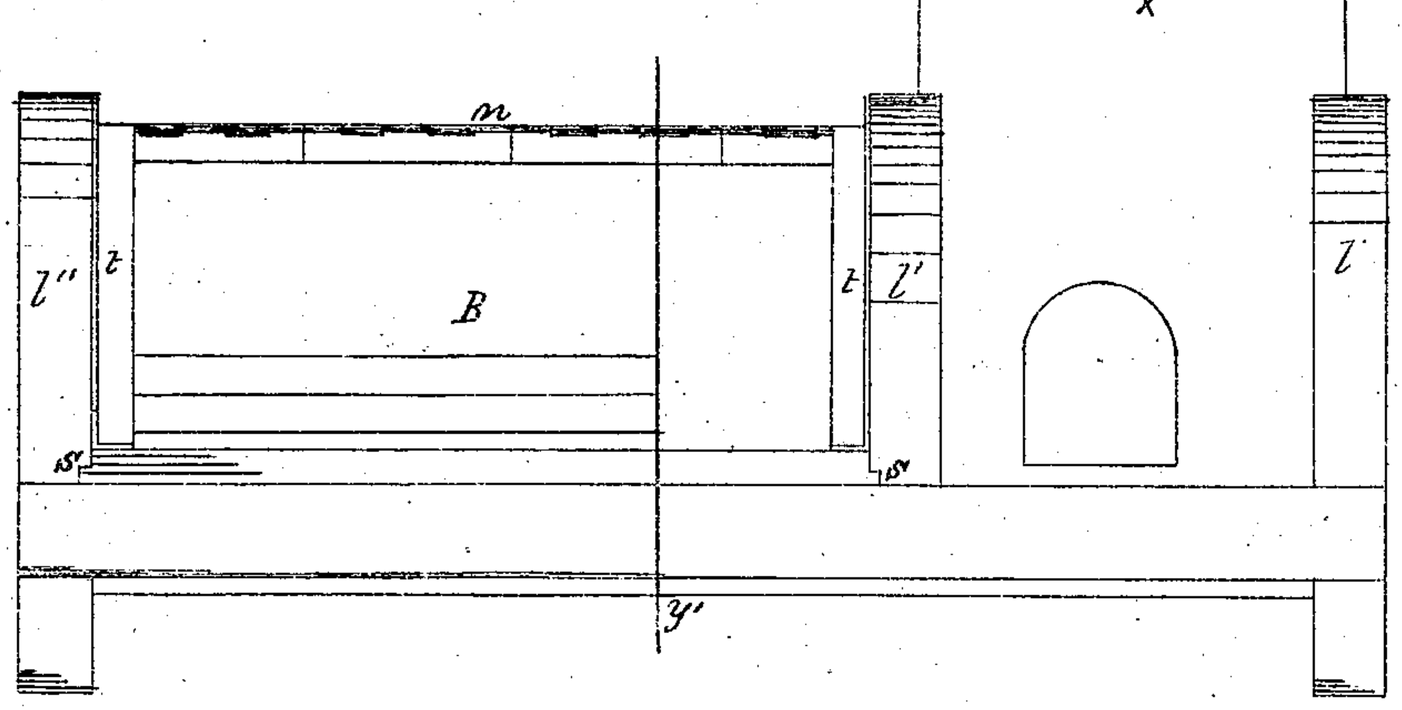
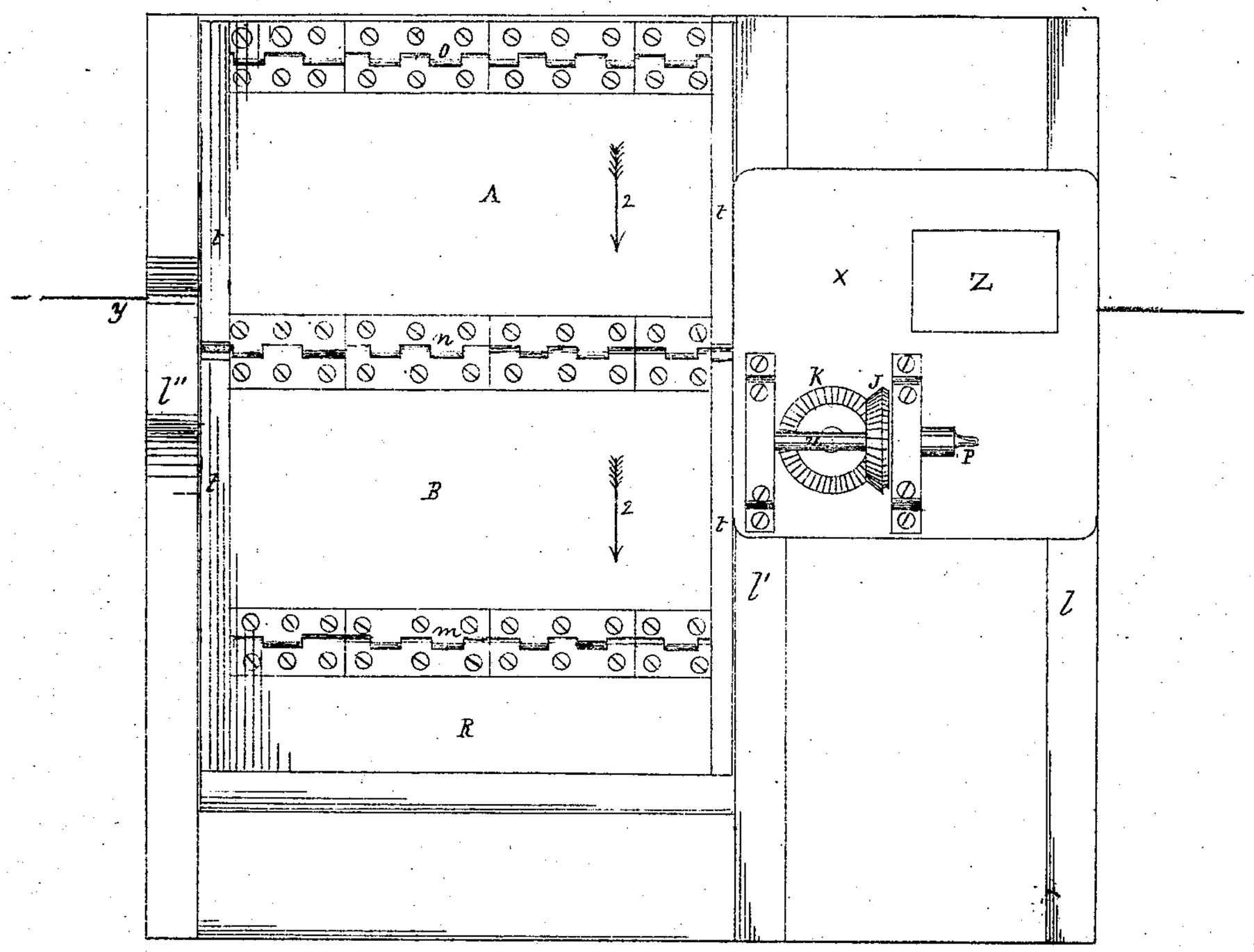



Fig. 2.




Witnesses,
Geo. H. Thomas
L. C. Thomas

Inventor:
John A. Wood By
A. J. Johnston his attorney

Sheet. 2.

Fig. 3

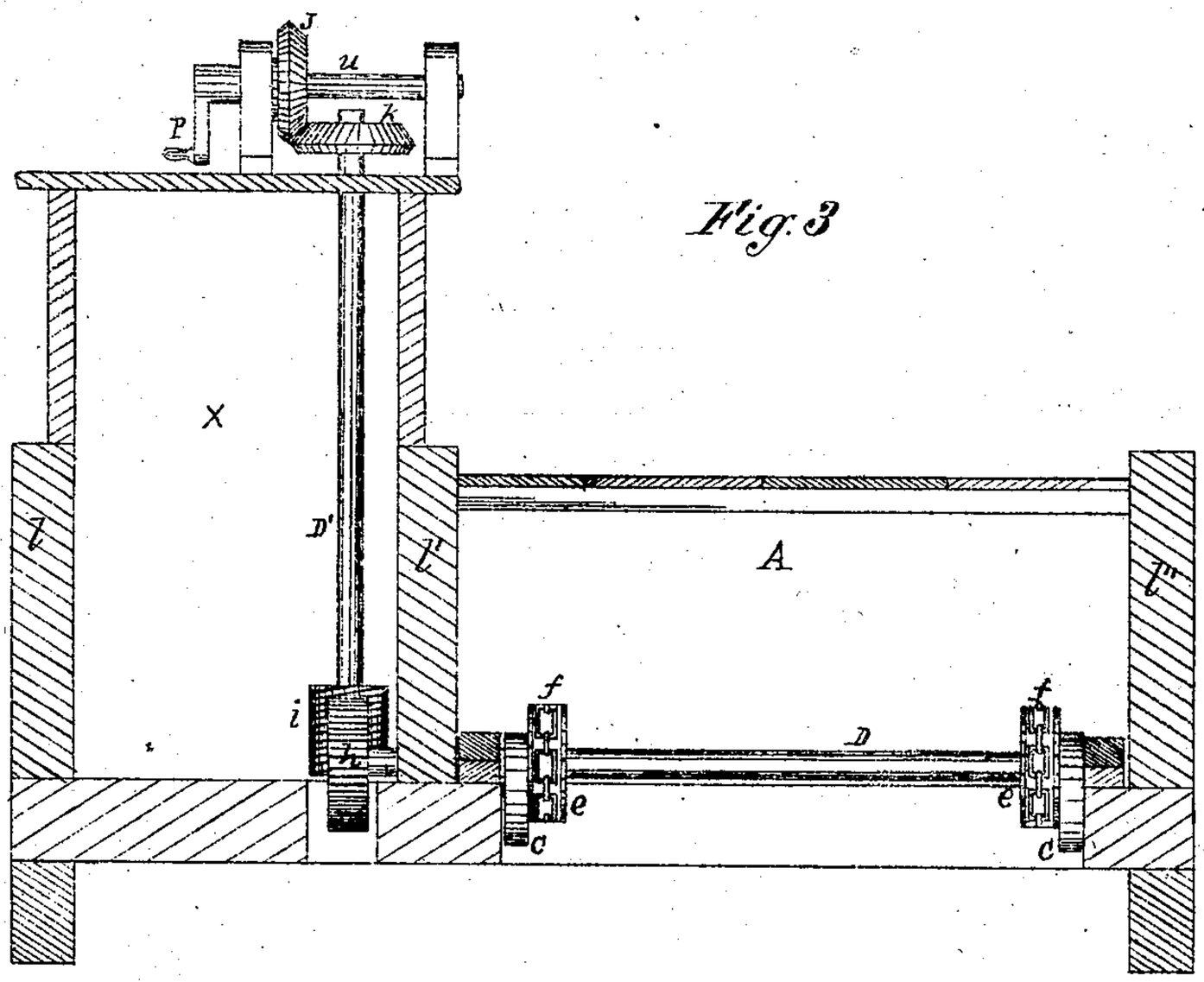
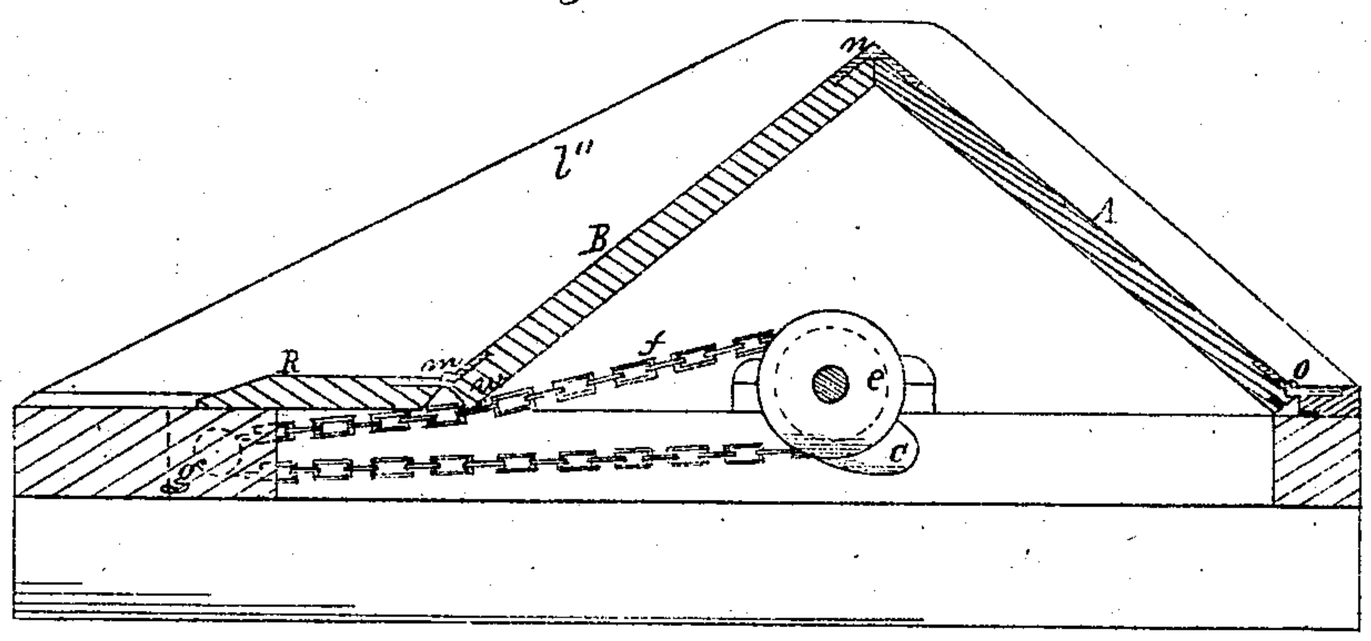



Fig. 4.



# UNITED STATES PATENT OFFICE.

JOHN A. WOOD, OF PITTSBURG, PENNSYLVANIA.

## IMPROVEMENT IN ADJUSTABLE DAMS.

Specification forming part of Letters Patent No. 117,028, dated July 11, 1871.

*To all whom it may concern:*

Be it known that I, JOHN A. WOOD, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Adjustable Dam for Slack-Water; and I do declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon.

The nature of my invention consists in an adjustable dam, consisting of two walls hinged together, and susceptible of being elevated and depressed through the medium of suitable operating gear, whereby the dam may be adapted to the various stage, quantity, or depth and condition of water in the river or other stream.

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 drawing which forms part of my specification, Figure 1 is a front elevation of my improvement in adjustable dam for slack-water. Fig. 2 is a top view or plan of the same. Fig. 3 is a vertical section of the dam when cut through at line *y* of Fig. 2. Fig. 4 is a vertical section of the dam when cut through at line *y'* of Fig. 1.

In the accompanying drawing, *l*, *l'*, and *l''* represent walls of masonry, wood, or iron. Between the walls *l'* and *l''* are arranged two walls, A and B, the wall A being hinged to strong timbers or masonry at the point marked *o*. To the wall A, at *n*, is hinged the wall B, which is also hinged at *m* to a guide, R, which moves in grooves S made in the side walls *l'* and *l''*. To the ends of the guide R and walls A and B are secured spring-guards *t*, which are used for the purpose of protecting the joints at the ends of the guide R and walls A and B. In the space under the walls A and B and guide R is arranged, in suitable bearings, a shaft, D, provided with cams C and driving-pulleys or wheels *e*. Around or on these pulleys or wheels, and around the friction-pulleys, (indicated by dotted lines,) at *g*, are arranged endless chains *f*, which, at *w*, are secured to the walls B. On one end of the shaft D is secured a wheel, *h*, the teeth of which mesh into the threads of an endless screw, *i*, on the lower end of the vertical shaft D', on the upper end of which is secured a bevel-wheel, K, which gears into a bevel-wheel, J, on the crank-shaft *u*. *x* represents a well or chamber which communicates with the space under the walls A and B and guide R. By means of this well or chamber *x* ingress is secured to all parts of the operating gear. *z* is a door-way for the well or chamber *x*. The arrows 2 represent the course or travel of the water over the walls A and B.

The operation of elevating or depressing the walls A and B is as follows: Power is applied to crank P, and the turning of it will revolve the shaft *u* and wheel J, which will revolve the wheel K, shaft D', and endless screw *i*, and the endless screw *i* will revolve the shaft D, which will revolve the driving-pulleys or wheels *e*, which will give the desired motion or travel to the endless chains *f* for elevating or depressing the walls.

It will be readily observed that by turning the crank P in one direction the desired motions will be imparted to the various parts of the operating gear for the purpose of elevating the walls A and B, and that by turning the crank in a different direction the desired motion is imparted to the gear for depressing the walls; and it will also be observed that the draft of the chains *f* at the points *w* on the walls B is transmitted to the walls A. The cams C are used for the purpose of startting the upward movement of the walls afrer being lowered to their lowest point of depression.

The advantage of an adjustable dam for slack-water navigation will be very apparent to all who have any experience in navigating steamboats, coal-boats, or other craft on streams where slack-water dams are used. The vexatious delays and other annoyance attendant upon the passing of boats through the locks, and the many accidents to men and boats, and the great loss of property which often occurs, are the great objections to the use of dams and locks for slack water. These delays, annoyances, accidents, and losses of property are avoided, in a very great degree if not altogether, by my improvement in adjustable dams, which, constructed as hereinbefore described, will be easily manipulated, and are not liable to become impaired, for the angles of the walls A and B are adapted to the current in the water-channel, and will give great power of resistance, and will also enable the navigator

to readily adapt the elevation of dam to the state and condition of the stream in which it may be placed.

Having thus described my invention, what I claim is—

The combination and arrangement of the adjustable walls A and B, guide R, cams C, shafts D and D′, driving-pulleys *e e*, chains *f f*, friction-pulleys *g*, wheel *h*, endless screw *i*, and driving-wheels J and K, constructed, arranged, and operating substantially as hereinbefore described, and for the purpose set forth.

JOHN A. WOOD.

Witnesses:

JAMES J. JOHNSTON,

J. G. THOMPSON.