

Carpenter & Peters,

Canal Lock Gate,

Patented May 30, 1848.

N^o 5,611.

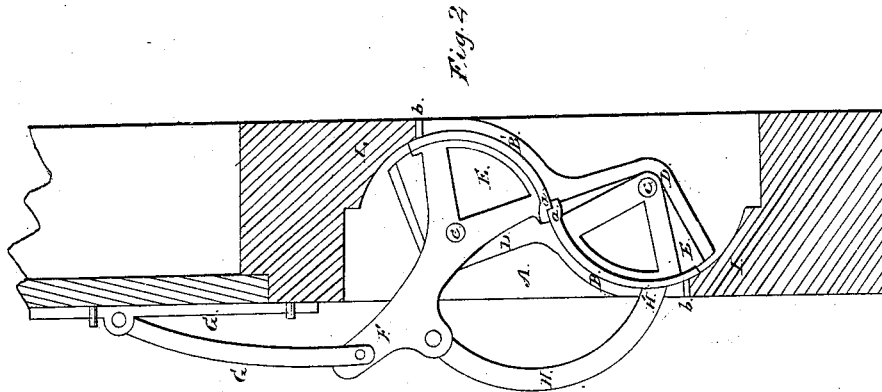
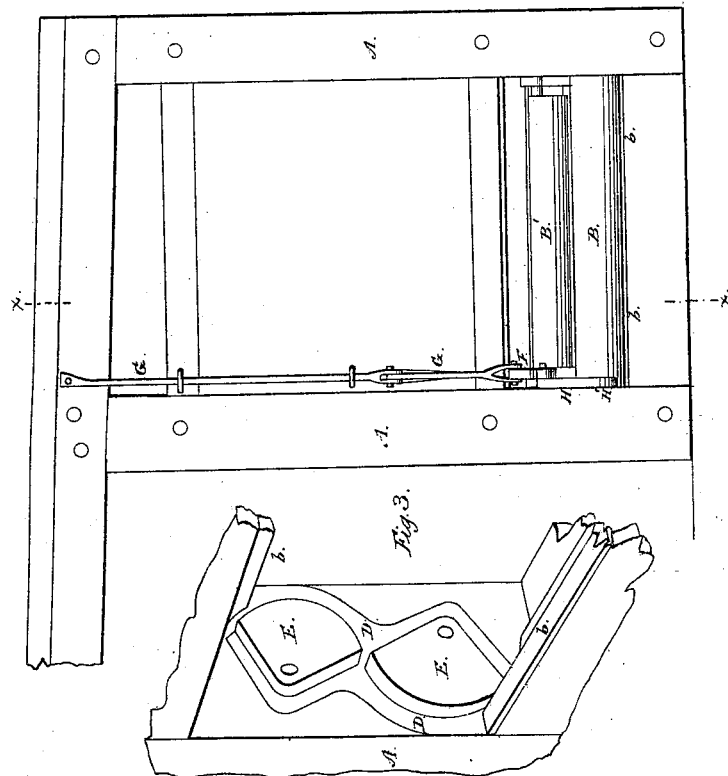


Fig. 1.



UNITED STATES PATENT OFFICE.

SANDS C. CARPENTER AND WILLIAM A. PETERS, OF CLIFTON PARK, NEW YORK; SAID PETERS ASSIGNOR TO SAID CARPENTER.

SLUICE-GATE FOR LOCKS.

Specification of Letters Patent No. 5,611, dated May 30, 1848.

To all whom it may concern:

Be it known that we, SANDS C. CARPENTER and WILLIAM A. PETERS, of Clifton Park, in the county of Saratoga, in the State of New York, have made a new and useful Improvement in the Manner of Constructing Sluice-Gates Used in the Lock-Gates of Canals, and we do hereby declare that the following is a full and exact description thereof.

Our sluice gates, or valves, are formed of cast-iron, and consist of two segments of hollow cylinders, which turn on pivots in a manner somewhat resembling those for which Letters Patent of the United States were granted to George Heath, dated on the 14th day of December, in the year 1841. In constructing his sluice gates he proposed sometimes to use a segment of a hollow cylinder, consisting of about one-half of such cylinder, and he sometimes divided his sluice gate into two parts, in which case each part consisted of about one-eighth of a cylinder, each of these parts being so hung upon pivots at their ends as that when closed the middle of each segment was opposite, or nearly so, to the pivot on which it turns.

In our improved gates, we use two segments of hollow cylinders each consisting of about one-fourth of such cylinder, and these we cause to turn on pivots at their ends, as in Heath's, but we so place these segments that their convex sides shall stand in directions the reverse of each other; when closed, their cross section, instead of representing a single convex surface, or two convex segments having their convexities in the same direction, will consist of two quadrant sections of hollow cylinders having the convexity of one of them, and the concavity of the other toward each side of the lock-gate. Under this arrangement the action, or pressure, of the water will be equalized, its tendency to open one segment and to close the other, as it rushes through, being equal in all positions, which is not the case when the two segments have their convexities in the same direction, the force with which the water tends to open, or to close them varying progressively on each of them as they are opened or closed.

In the accompanying drawing, Figure 1, is a view of a lock-gate, having our sluice-gates therein, and represented as closed. The

sluice-gates are shown as extending from one post of the lock gate to the other, but they may be made to occupy any portion of this distance. Fig. 2, represents a vertical section of the lower part of the gate in the line *xx* of Fig. 1, showing the curvatures of the two segments, and the manner in which they are hung. This latter figure is drawn to a scale three times as large as Fig. 1.

A, A, are the posts of the lock-gates.

B, B', are the sluice gates, or valves, consisting of two segments of cylinders, and represented as closed; these are hung on pivots at C, C', in the center of the curvature of the outside of said cylindrical segments. The pivots, C, C', are sustained by an iron casting which consists of a plate, D, D, that is let into the inside of the posts, and is flush with them; upon these there are two segment pieces E, E, cast therewith and adapted to the curvature of the insides of the cylindrical segments. This casting is shown separately, and in perspective, in Fig. 3, the plate part, D, D, of it being let into the post. This part we have made an inch and a quarter thick, and the segment pieces, E, E, rise three-fourths of an inch above the plate D.

The convex side of the sluice gate, B, and the concave side of that, B', are shown as being placed toward that side of the lock-gate shown in the drawing. It is most advantageous so to place them, to enable the rod by which they are opened and closed to operate on the arm, F, which extends out from the upper segment.

The rod, or bar, G, G, by which the sluice gates are opened and closed may be drawn up, or forced down, in any of the modes now used for that purpose.

To the arm, F, which revolves the upper gate, is jointed the curved arm, H, attached to the lower gate at its end H', the two gates being thereby made to open and close simultaneously. Where the two gates meet, as at *a, a*, they are made to lap upon each other, for the purpose of making a close joint, as shown in the drawing.

I, I, are concave pieces which extend along the opening that receives the sluice gates, their concavity being such as to adapt them to the cylindrical segments, B, B'. These we usually make of wood, but they may be of iron; we, however, prefer the former.

b, b, are bars of iron that we place along the inner edges of the concaves, *I, I*, to protect them from injury.

5 The cylindrical segments, *B, B'*, we flatten in a small degree, or we form them so that the curvature of their faces shall be something greater than that due to their radii, or the distance from the pivots on which they turn, by this means they are relieved from the danger of rubbing against the bars, *b, b*, while they come into close contact with them when the gates are closed.

10 The outer surfaces of the cylindrical segments have for the upper one a radius of nine inches and for the lower one a radius of eleven inches only, while from the manner in which the segment gates used by Heath are constructed and operate, they require more than double that radius. Our seg-
15 ments are therefore readily contained within the thickness of the posts, *A, A*, and the purchase, or leverage, by which they are moved is much greater than as heretofore made,

and that without allowing any part of the apparatus to project to an inconvenient distance beyond the face of the lock-gate.

Having thus, fully described the nature of our improvement in the manner of constructing the sluice gates of canal locks, and shown the operation thereof, it is to be understood that what we do claim as new, and desire to secure by Letters Patent, is—

The manner in which we have combined and arranged such gates, as herein set forth; that is to say, we claim the placing of two quadrant segments of a hollow cylinder, with their convex sides in reversed directions, said segments being arranged, and operating substantially in the manner, and for the purpose, herein set forth.

SANDS C. CARPENTER.
WILLIAM A. PETERS.

Witnesses:

THOMAS M. PETERS,
THOMAS D. PETERS.