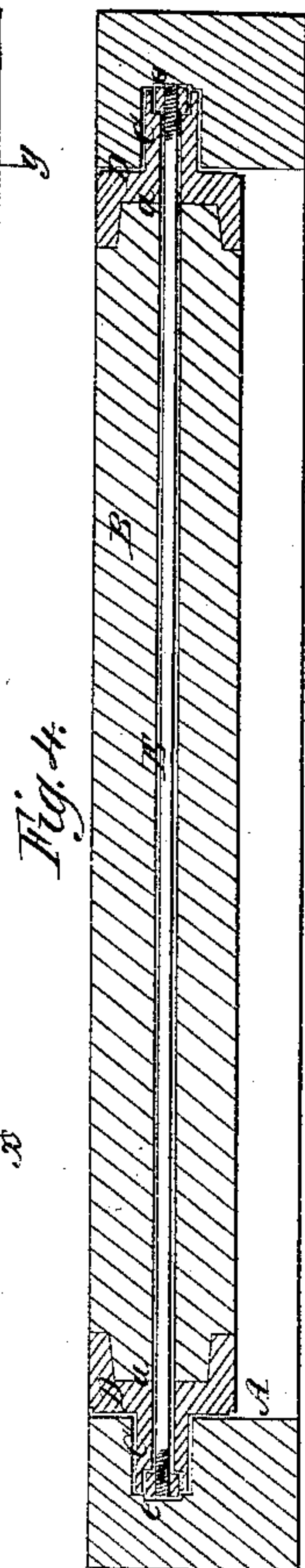
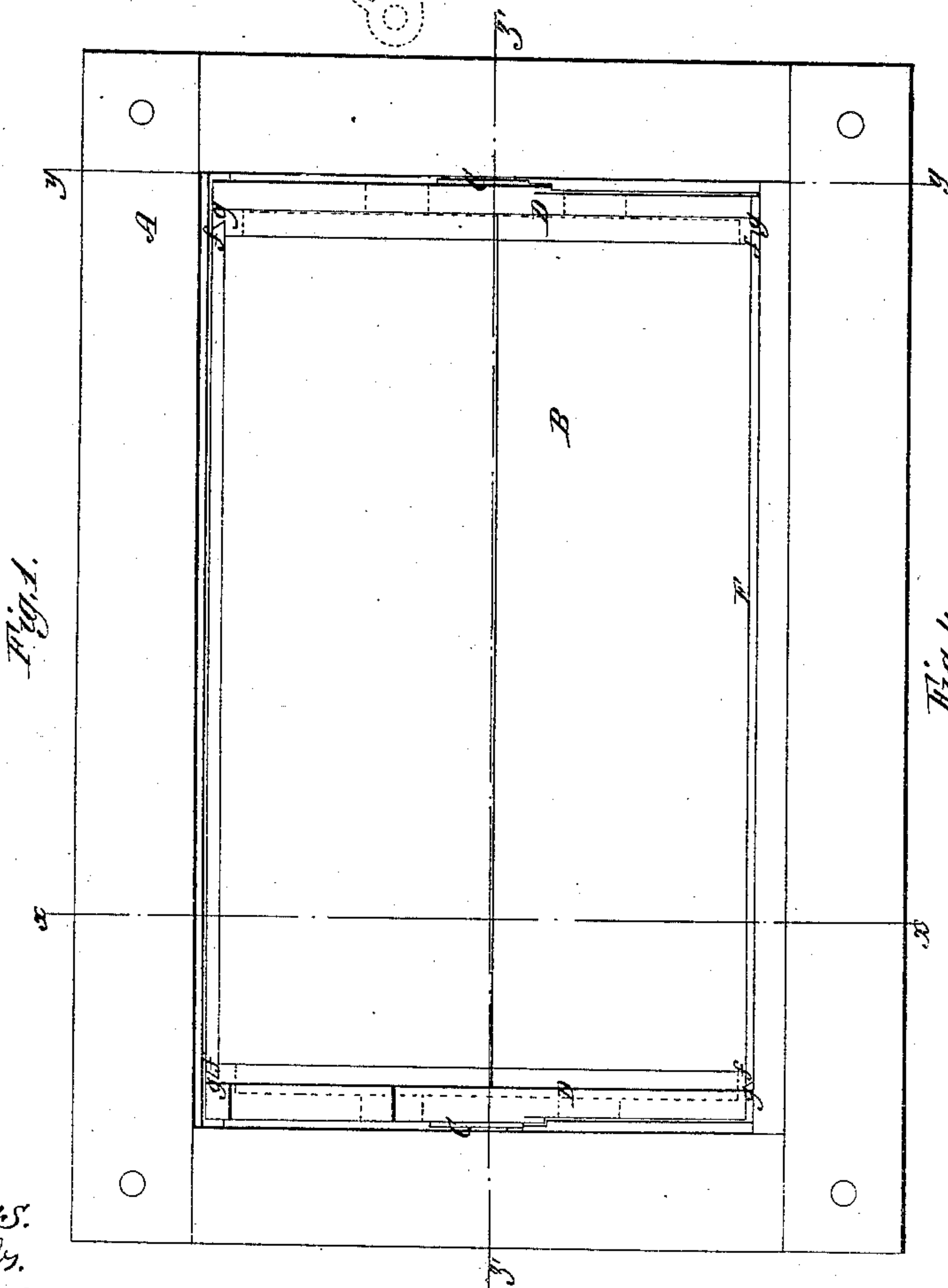
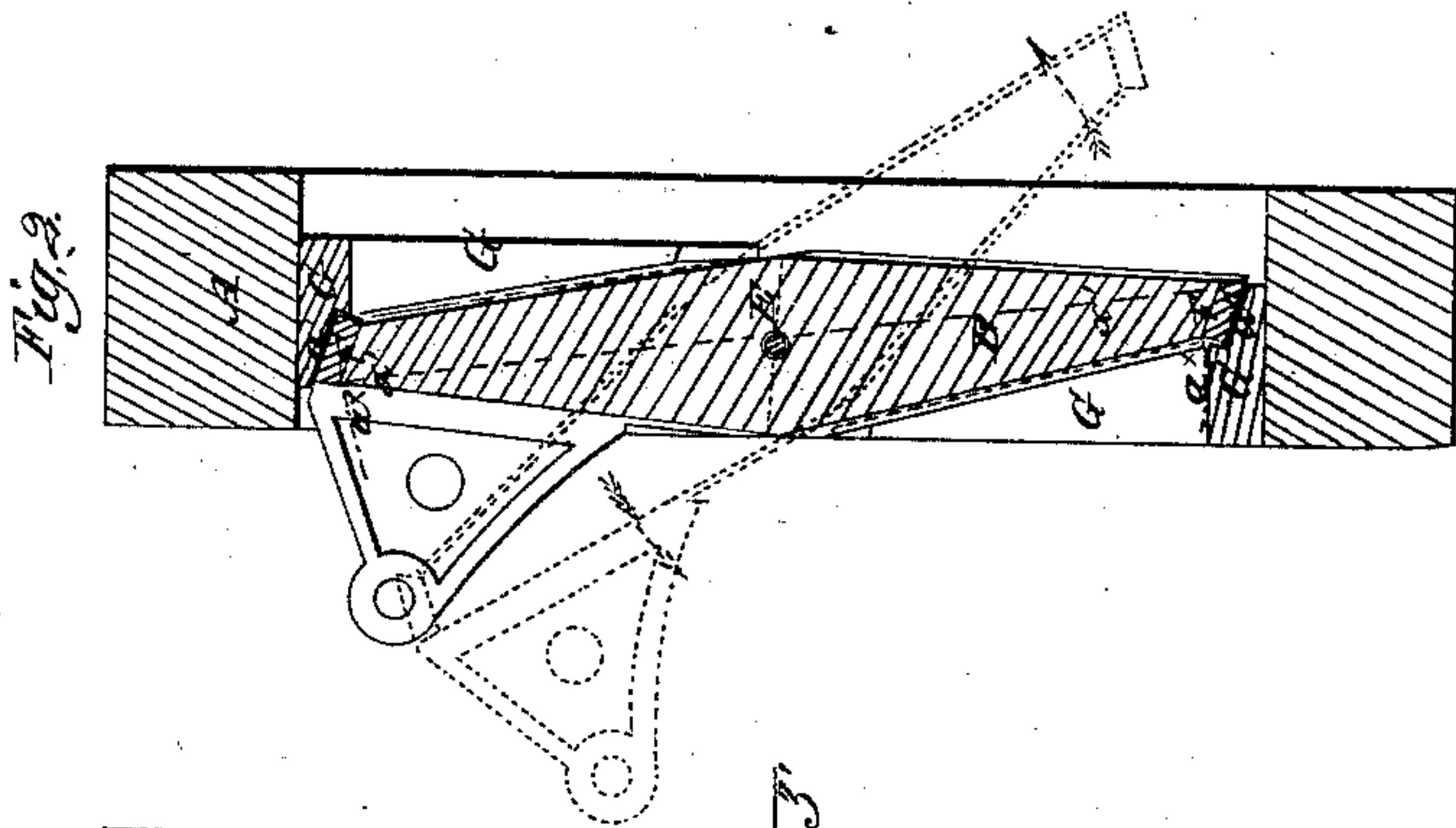
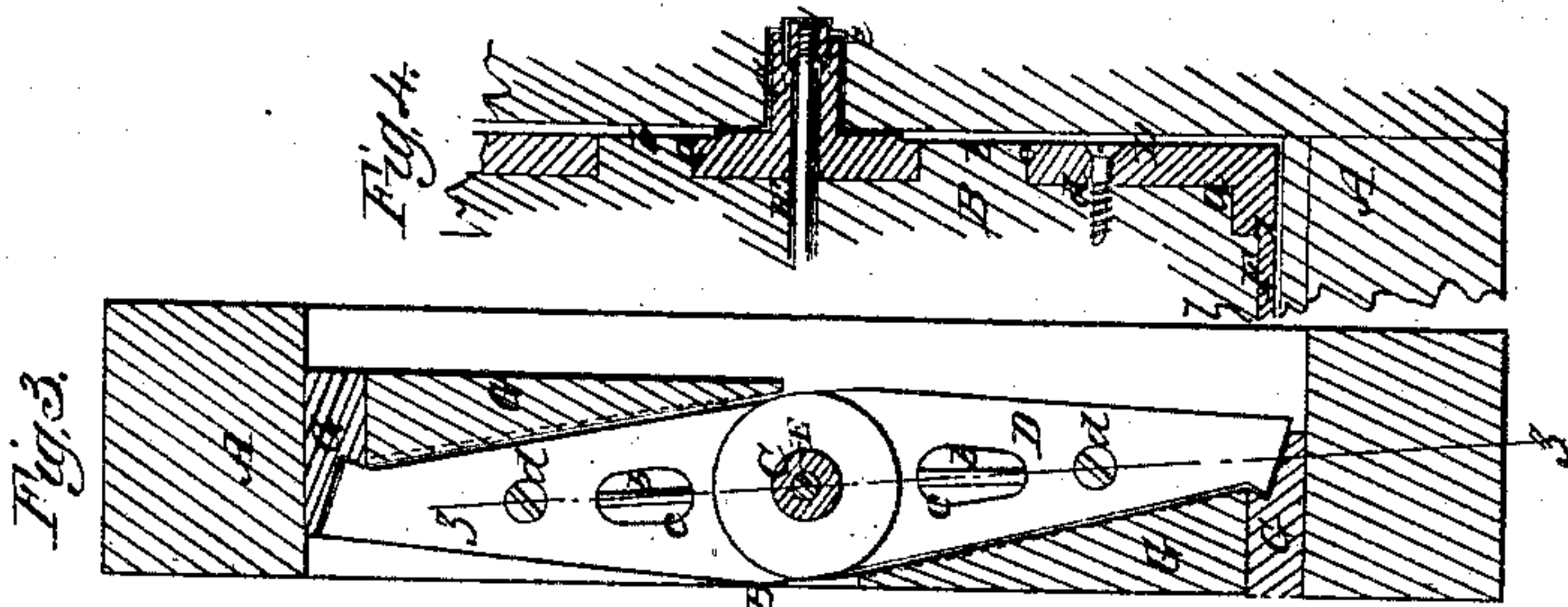


*G. Heath.*

*Canal Lock Gate.*

*N<sup>o</sup> 35,756.*

*Patented Jul. 1, 1862.*



*Witnesses.*  
*J. W. Coombs.*  
*Geo. Reed.*

*Inventor.*  
*George Heath.*  
*per Mum & Co.*



# UNITED STATES PATENT OFFICE.

GEORGE HEATH, OF LITTLE FALLS, NEW YORK.

IMPROVEMENT IN VALVES OR WICKETS FOR CANAL-LOCK GATES.

Specification forming part of Letters Patent No. 35,756, dated July 1, 1862.

*To all whom it may concern:*

Be it known that I, GEORGE HEATH, of Little Falls, in the county of Herkimer and State of New York, have invented a new and Improved Valve or Wicket for Canal-Lock Gates, and which I term a "Combination Lock-Valve;" and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a face or front view of my invention. Fig. 2 is a vertical section of the same, taken in the line *x x*, Fig. 1. Fig. 3 is a vertical section of the same, taken in the line *y y*, Fig. 1. Fig. 4 is a section of Fig. 3, taken in the line *z z*; Fig. 5, a horizontal section of Fig. 1, taken in the line *z' z'*.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates, first, to an improvement in the construction of the valve or wicket, which is of wood and metal combined and arranged in such a way as to effectually prevent springing or warping and render it extremely strong and durable.

The invention relates, second, to a novel arrangement of the valve or wicket as regards the relative position of its axis with its ends, and also as regards the shape or formation of the latter, whereby the pressure of the water is made available in keeping the valve or wicket closed, and also made available in assisting to open it when started from its seat.

The invention relates, third, to an improvement in the seats of the valve or wicket, as hereinafter fully shown and described, whereby the same is rendered water-tight when closed and a substantial and firm bearing obtained.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a frame, in which the valve or wicket B is fitted. This frame A is of rectangular form, as shown in Fig. 1, and the valve or wicket is of the same form, and is hung within the frame A on an axis formed of two journals, C C, of suitable diameter, which project from metal heads D D on each end of the valve or wicket. (See Figs. 1, 4, and 5.) The heads D D extend the whole

height of the valve or wicket, and the ends of the latter are fitted in grooves or recesses *a a* in the inner sides of the heads (see Figs. 4 and 5) and two tenons, *b b*, at the ends of the valve or wicket pass through holes or mortises *c c* in the heads. (See Figs. 3 and 4.) The heads are secured to the ends of the valve or wicket by screws *d*, and also by a shaft, E, which passes longitudinally through the valve or wicket and journals C C of the heads, and has screw-nuts *e* on its ends. (See Fig. 5.) The upper and lower edges of the valve or wicket have metal bars F F attached, and the ends of these bars are made of beveled form, as shown at *f*, to fit into V-shaped grooves *g* in the ends of the heads D D, as shown clearly in Fig. 1. This mode of securing the bars F to the edges of the valve or wicket, in connection with screws which may pass through the bars F into the edges of the valve or wicket, insures a permanent attachment, and, in connection with the metal heads D D, causes the valve or wicket to be bound with metal, and effectually prevents the same from springing or warping, and also renders the valve or wicket extremely strong and durable, providing it with good substantial journals, the application of which to a wooden valve or wicket is a great desideratum. This binding or incasing of the wooden valve or wicket with metal admits of the same being formed of one or more pieces, as desired. If two pieces are used, they may be longitudinal equal parts, abutting at their inner ends to form a joint intersecting the shaft E, as shown by the dotted lines in Fig. 2.

The upper and lower edges of the valve or wicket are of beveled form, as shown clearly at *a' a''* in Figs. 2 and 3. The blue arrows shown in Fig. 2 indicate the direction of the pressure of the water against the valve or wicket; and it will be seen that the edges of the valve or wicket are beveled downward and outward from the pressure side, the upper and lower edges being parallel with each other. This arrangement gives the upper part of the valve or wicket above its axis a greater area than the lower part at the pressure side of the valve or wicket, the increased area of the upper part being formed by the beveling of the upper and lower edges, as will



be seen by referring to the red dotted lines  $a^x$  in Fig. 2, which are struck from the axis of the valve or wicket. This increased area of the upper part of the valve or wicket is obtained with a central point of suspension, for it will be seen that a plane passing from one extreme edge to the other, as indicated by the line  $a' a'$  in Fig. 2, is of equal height both above and below the axis, and said increased area of the upper part of the valve will of course cause the pressure of the water to keep it closed, and in opening the valve or wicket the water, when the former is started from its seat, will act upon the upper beveled edge,  $a'$ , and greatly assist in opening the valve or wicket, the direction of the movement of which is indicated by the dotted arrows in Fig. 2. These beveled edges therefore, it will be seen, constitute an important feature of the invention, and they also insure a snug joint when the valve or wicket is closed, as they bear against beveled rabbeted cleats  $G G$ , attached to the upper and lower parts of the frame  $A$ . These beveled rabbeted cleats also are at the sides of the frame  $A$ , and extend downward and upward to points nearly in line with the axis of the valve or wicket, as shown in Figs. 2 and 3, and they serve as good substantial

bearing-surfaces for the latter, and prevent the escape or leakage of water.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. Having the ends of the valves  $B$  provided with heads  $D$ , that have hollow journals  $C$  projecting therefrom, and openings  $c$  for the entrance of tenons  $b$ , in combination with the central shaft,  $E$ , substantially as and for the purpose herein shown and described.

2. The combination of the beveled bars  $F F$  on the edges of the valves with the  $V$ -shaped grooves  $g g$  in the heads  $D D$ , in the manner and for the purpose herein shown and described.

3. The arrangement of the beveled edges of the valves and cleats  $G G$  with the central axis, in the manner substantially as herein shown and described, so that the valves, although having their axes in the center, will present the greatest area for the pressure of the water above their axes, all as set forth.

GEO. HEATH.

Witnesses:

MARCUS R. CASLER,  
ALVAN RICHMOND.