

# Jones & Brown Water Wheel.

N<sup>o</sup> 28138.

Patented May 1, 1860.

Fig: 1.

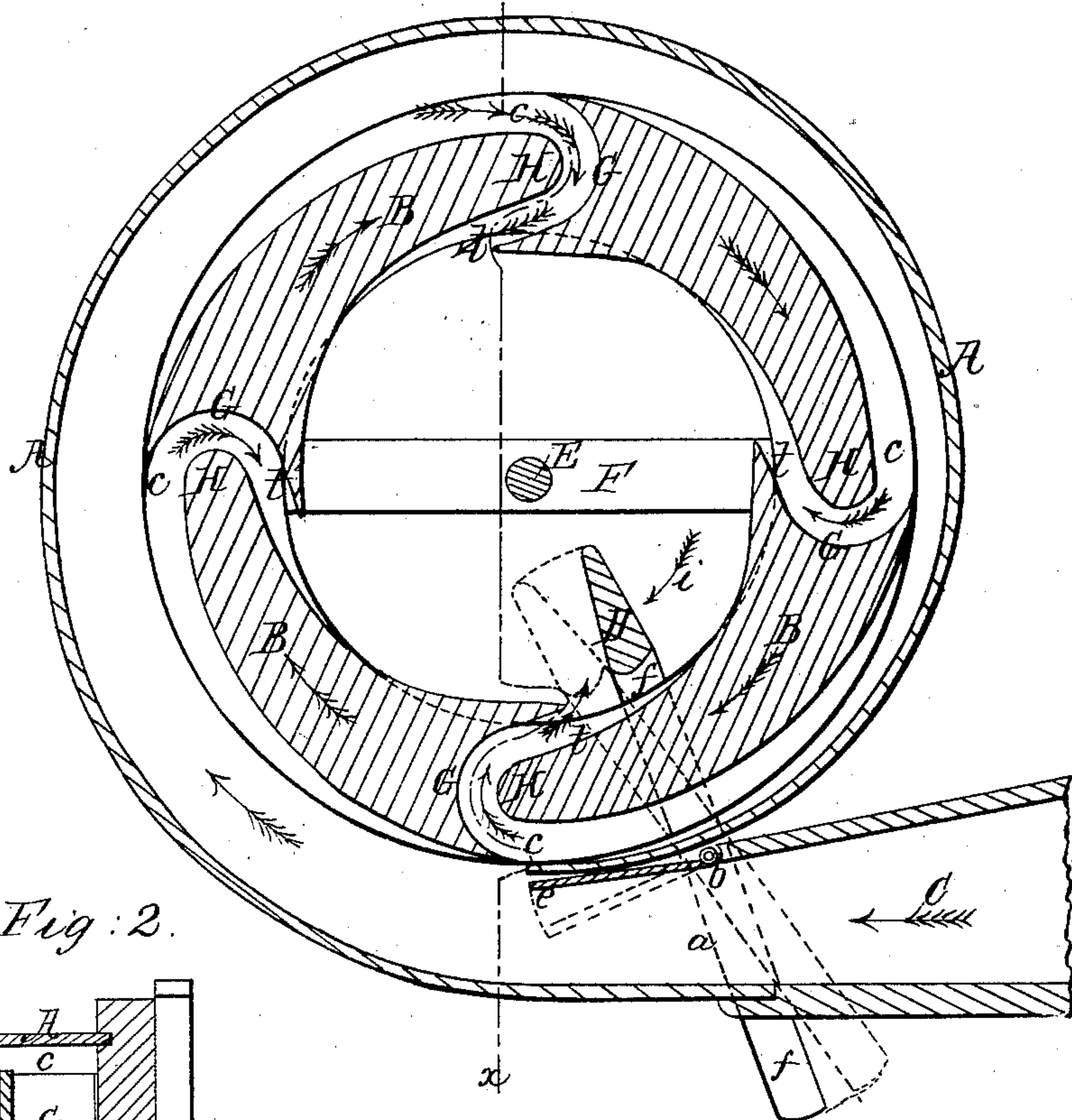


Fig: 2.

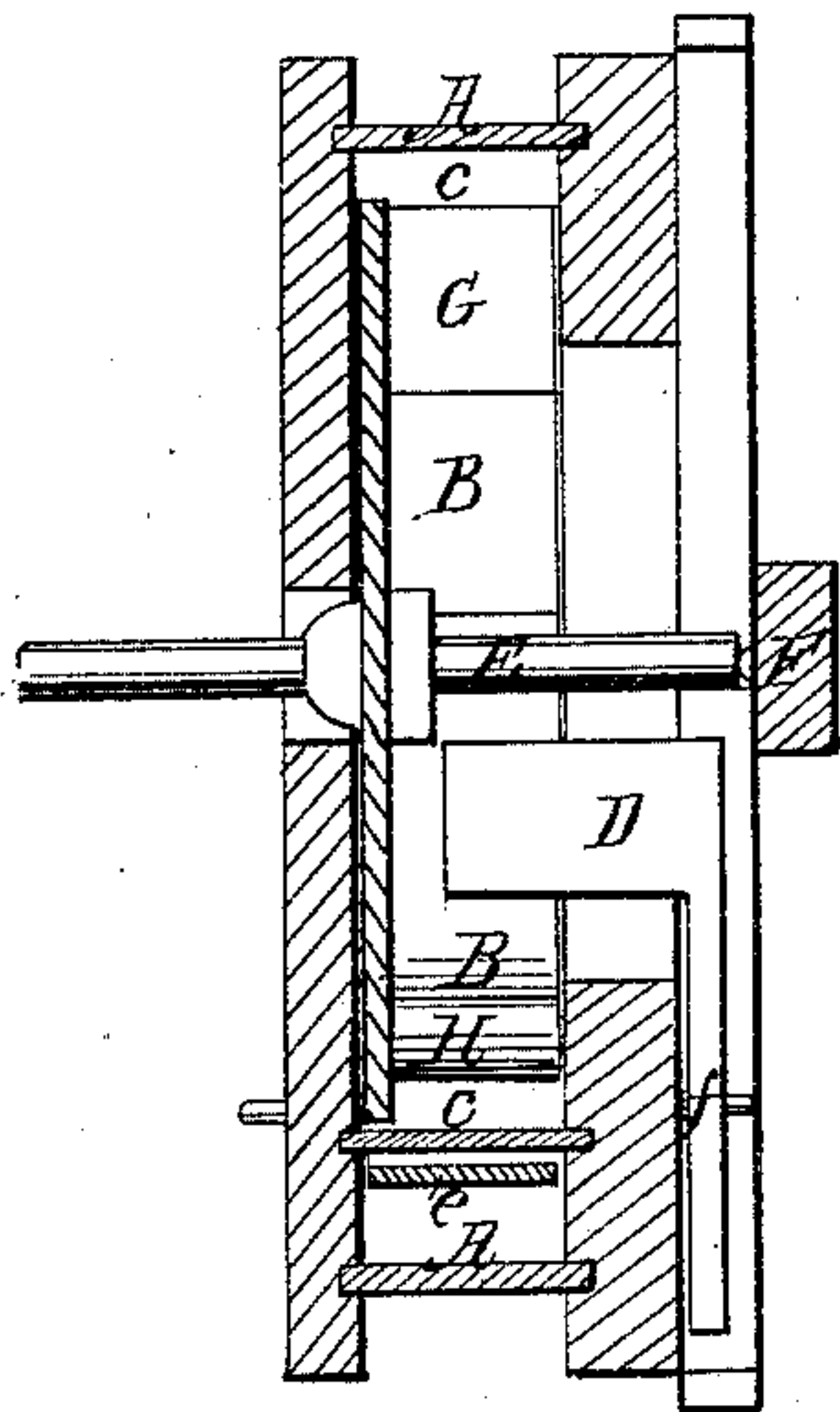


Fig: 3.

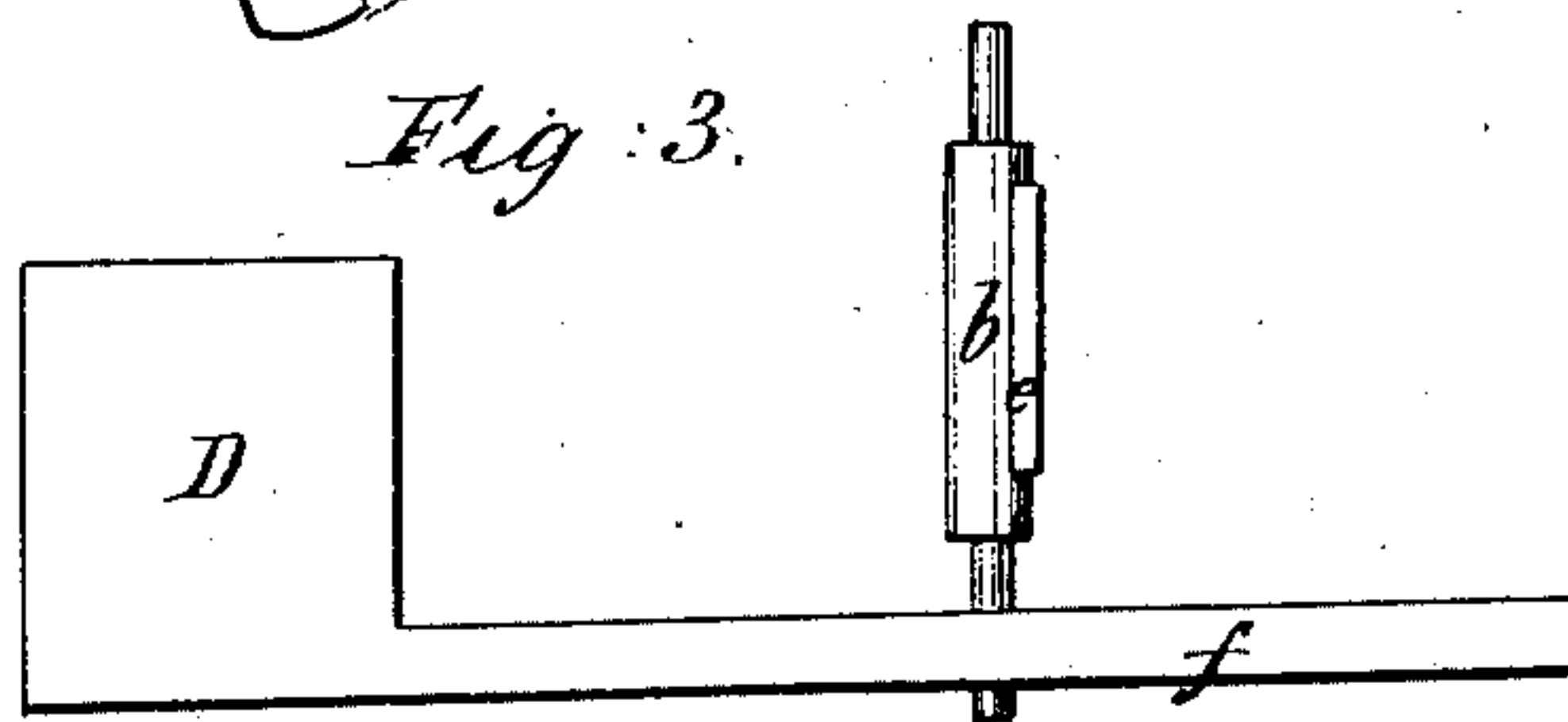
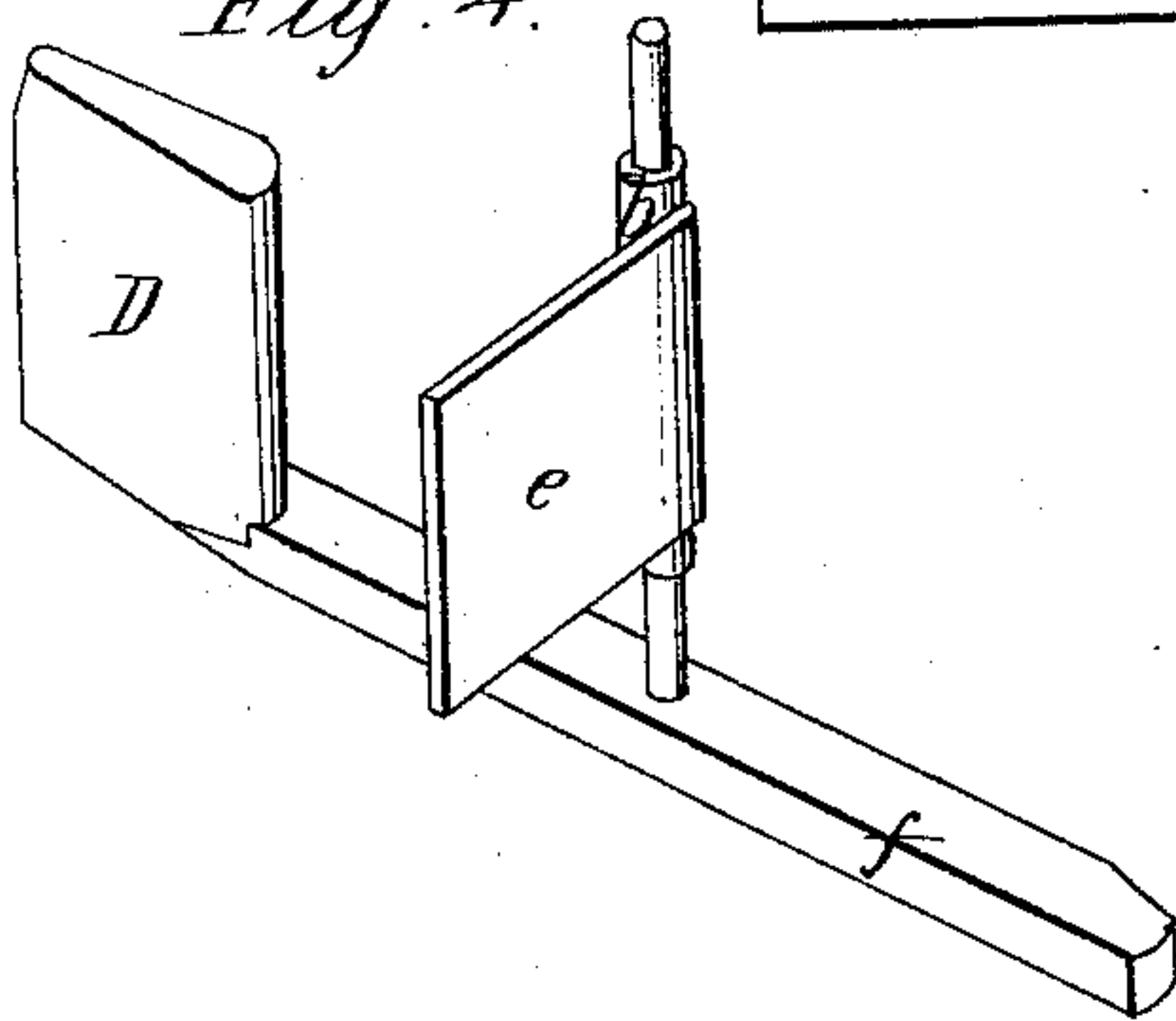


Fig: 4.



Witnesses;  
J. Fraser.  
S. J. Allis.

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# UNITED STATES PATENT OFFICE.

GEO. H. JONES AND JOHN BROWN, OF ROSE, NEW YORK.

## WATER-WHEEL.

Specification of Letters Patent No. 28,138, dated May 1, 1860.

*To all whom it may concern:*

Be it known that we, GEO. H. JONES and JOHN BROWN, of Rose, in the county of Wayne and State of New York, have invented a new and Improved Center-Vent Water-Wheel; and we do hereby declare that the following is a full and exact description of the construction and operation of the same, reference being had to the accompanying drawings, in which—

Figure 1, is a horizontal section, or plan with the top of the wheel and scroll removed. Fig. 2, is a vertical section on the line  $xx$  of Fig. 1. Fig. 3, is a side elevation of the regulating lever  $f$  and float D. Fig. 4, is a perspective view of the same.

Similar letters designate corresponding parts in all of the figures.

Our invention consists in an improved method of constructing the buckets of the wheel, and of regulating the quantity of water admitted to the wheel by its force as it is emitted therefrom.

As represented in the drawings, A is the scroll-chute, and B, the buckets of the wheel, of which E is the shaft and center of motion, supported by the step F. The buckets are scroll-formed, diminishing from the end G, to one third of the diameter at H. The former extremity being concave, forming nearly a semi-circle, and the latter convex, and placed in juxtaposition, the space between forms the circular passage or sluice  $c$ , by which the water received from the chute is omitted in the center, after having expended its force on the wheel. As the water enters the sluices from the chute its force is expended directly in imparting motion to the wheel in a very effective manner, acting not only from its velocity but from the centrifugal and centripital force of the current, a result obtained from the semi-circular form of the bucket G, which presents an opposing surface to each of these forces. A wheel having four buckets like that represented, would receive at each sluice, while stationary, one fourth of the column of water which passed the chute at  $a$ , but if it revolved at one half the velocity of the water each bucket would receive one half of that amount, and if the velocity of the wheel should be between one half and two thirds that of the water, (which is its best working velocity,) their combined area will be equal to twice that of the chute; or if at two thirds the rate, to three times that. If the wheel is

free from back water it will work equally well if the combined size of the openings  $c$  be four or six times that of the chute. The width of the buckets at the end G, must be equal to three times the diameter of the sluices  $c$ , otherwise the water will be partially broken and its power diminished. The sluices should expand slightly at their termination  $t$  to facilitate the discharge of the column.

The regulating device consists of the lever  $f$  which is pivoted at  $b$  in a position to nearly at right angles with the direction of the chute, one arm extending in toward the center of the wheel, to which is attached the vertical float D, which rises in the opening the wheel in a position contiguous to the discharge of the sluices.

On the staff  $b$  a gate  $e$  is rigidly attached at nearly right angles with the lever. The staff being also fastened rigidly to the lever, the movement of the latter by moving the gate more or less across the chute diminishes the area of the latter, and reduces the quantity of water let upon the wheel. This is effected automatically in the following manner. If the velocity of the wheel becomes too great the discharge water, partaking of its motion, strikes the float D, in the direction of arrow  $i$  with sufficient force, owing to the length of the lever  $f$ , to partially close the chute, by means of the gate  $e$ , as shown by the dotted lines; but if, on the contrary, the wheel should be moving slowly as in starting, and the chute not fully open the current issuing from the sluices  $c$  impinges upon the opposite side of the float and opens the chute. By this means the speed of the wheel may be made uniform and regular at all times, an object of very considerable importance.

The whole forms a wheel of very simple construction but of great power and efficiency.

What we claim as our invention, and desire to secure by Letters Patent, is—

The employment of the regulating lever  $f$ , float D, and gate  $e$ , actuated by the discharge water of the wheel to regulate the speed thereof, substantially in the manner and for the purposes shown and described.

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