

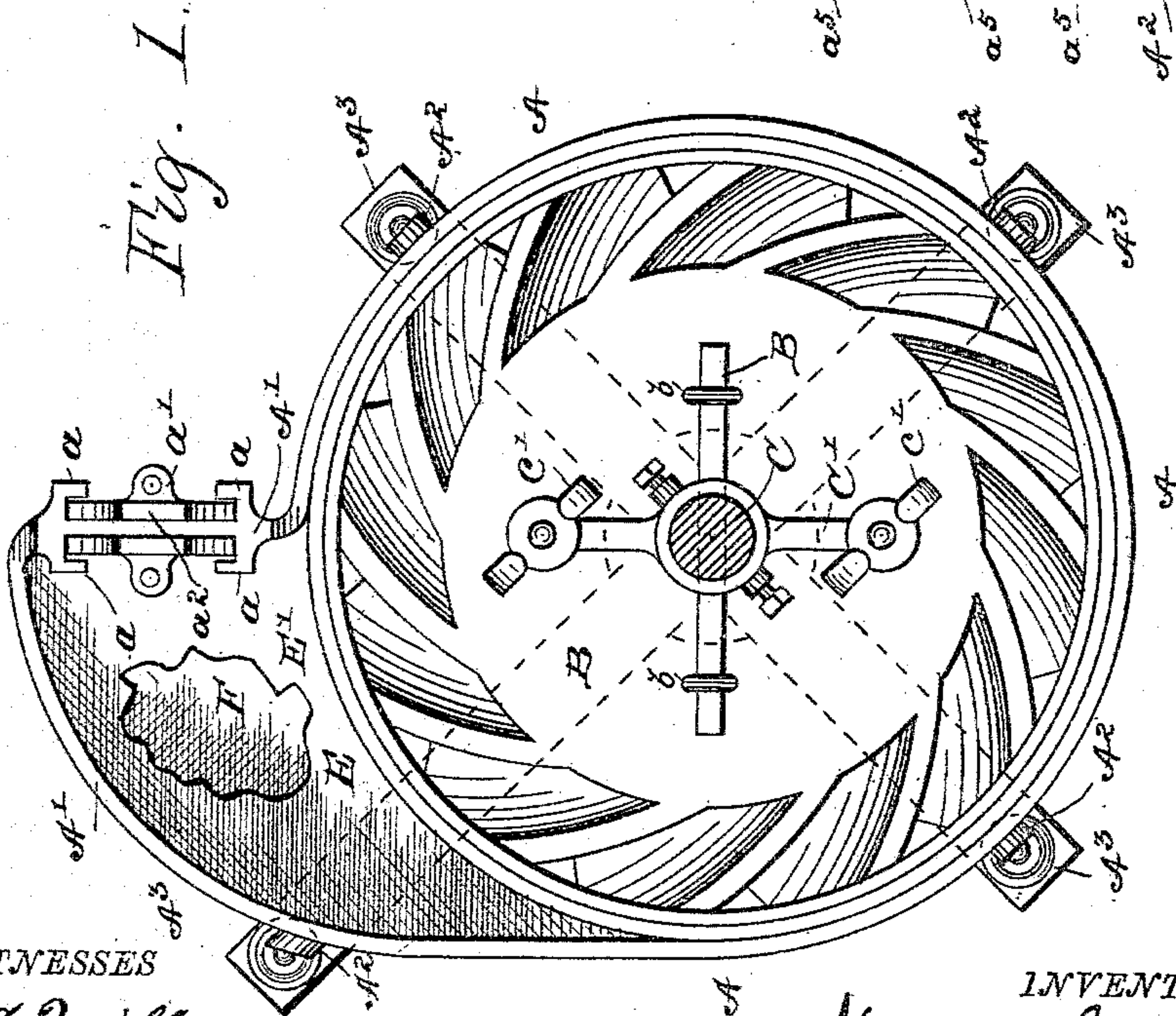
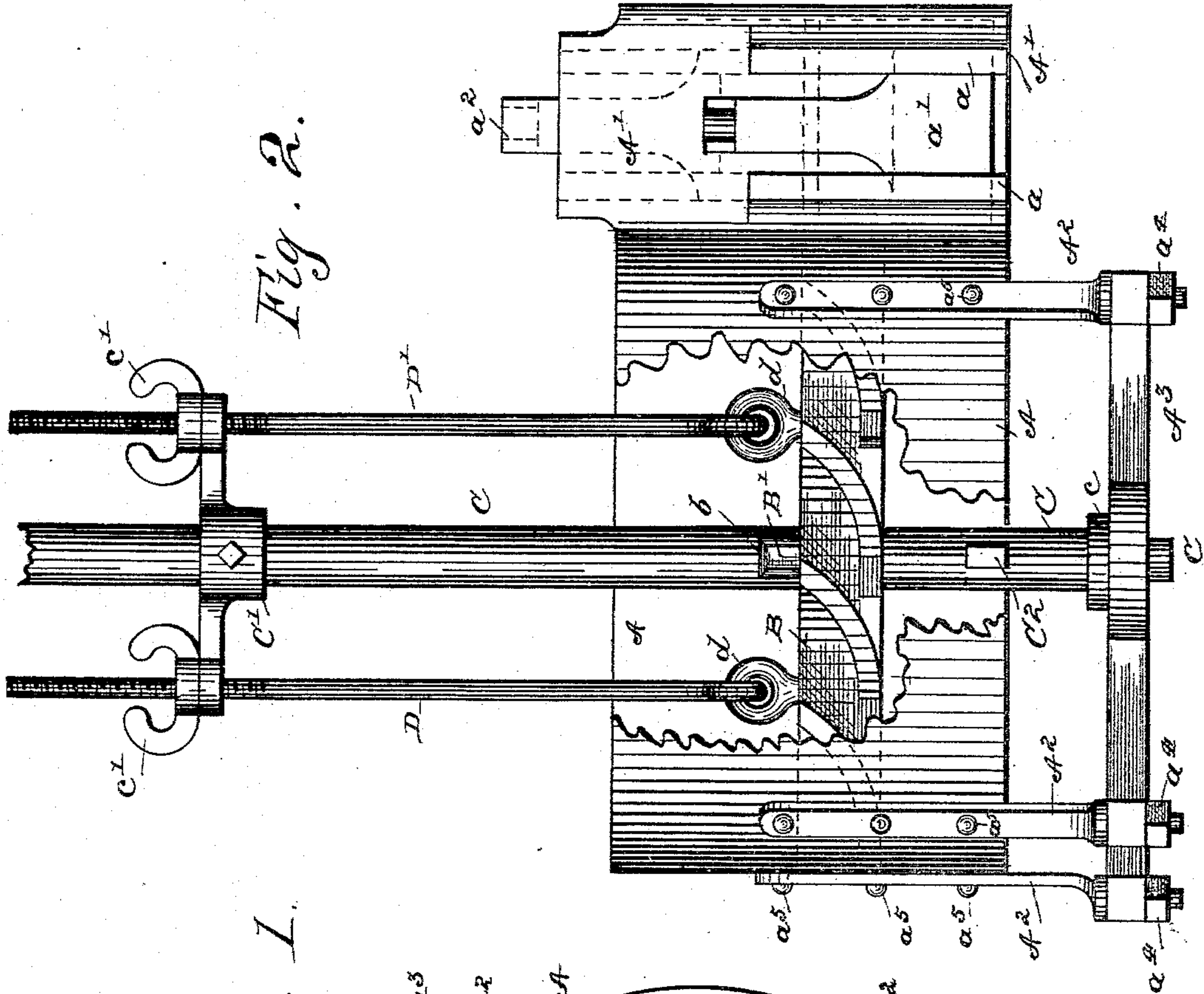
(No Model.)

2 Sheets—Sheet 1.

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WATER MOTOR.

No. 356,873.

Patented Feb. 1, 1887.



WITNESSES

John C Miller,
Percy White.

INVENTOR

Henry Geer
By J. W. Feltman
Attorney

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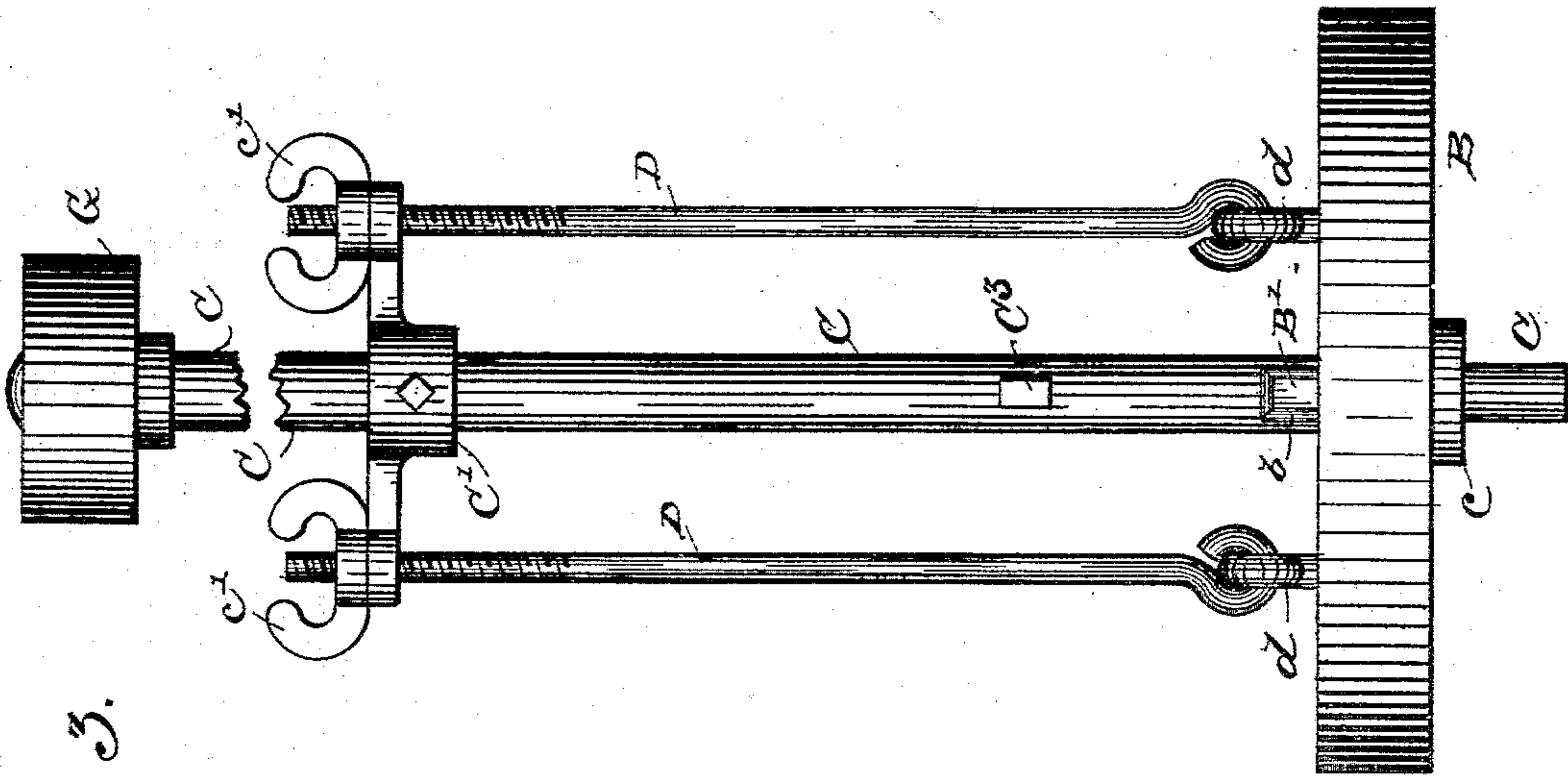


Fig. 3.

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UNITED STATES PATENT OFFICE.

HENRY GEER, OF VALE'S MILLS, OHIO.

WATER-MOTOR.

SPECIFICATION forming part of Letters Patent No. 356,873, dated February 1, 1887.

Application filed November 8, 1886. Serial No. 218,265. (No model.)

To all whom it may concern:

Be it known that I, HENRY GEER, a citizen of the United States, residing at Vale's Mills, in the county of Vinton and State of Ohio, have
5 invented certain new and useful Improvements in Water-Motors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains
10 to make and use the same.

The object of this improvement is a water-motor with an adjustable wheel that can be conveniently raised or lowered and securely held in an adjustable position on the shaft,
15 and thereby adapted to efficient operation in either high or low water. These results are attained by the mechanism illustrated in the drawings herewith filed as part hereof, in which the same letters of reference denote the same parts in the different views.

Figure 1 is a plan, with parts broken away and parts removed, representing a water-motor embodying the features of my improvement. Fig. 2 is a side elevation partly in section. Fig. 3 is a side elevation partly in section, representing the wheel and shaft detached and the wheel in an adjustable position on the shaft, and the means for adjusting and securing the position of the same.

30 A represents the wheel-casing, having a double gateway, A', hereinafter more fully explained. The casing A A' is suitably secured by bolts or rivets, as shown at a^2 , to standards A², which are adapted to be bolted, as shown
35 at a^4 , to a spider, A³, preferably made of metal.

B is the wheel adjustably fitted to the shaft C, which is provided in different positions with transverse slots, one of which is indicated at C² in Fig. 2, and the other at C³ in Fig. 3. The lower end of the shaft C sets in a central corresponding perforation of the spider A³, which forms a bearing for and supports the shaft and wheel by reason of the shaft-collars c .

The water-wheel B is provided at its upper side with two opposite stirrups or eyes, $b b$, that are immediately in line with each other and with the slots C² C³ through the shaft C.

50 B' is a bar or key set into the eyes $b b$ and

into the slot C³ for the purpose of securing the wheel B to the shaft C in the elevated position shown in Fig. 2, and also for securing its connection with the shaft transversely, so that the shaft will turn with the wheel.

In line with the center of the shaft C, at opposite sides of the bar B', the upper side of the wheel is provided with eyes $d d$, which may be made integral with the body of the wheel, or suitably secured thereto, as may be
60 deemed advisable.

C' is a bracket rigidly secured by set-screws or otherwise to the shaft C, substantially in the position represented, and provided with perforations for the reception of rods D D', which
65 are secured at their lower ends to eyes $d d$ on the wheel B, and are provided at their upper parts with about three feet of screw-threads and hand-nuts $c' c'$ corresponding thereto.

By removing the bar or key B' from the stirrups $b b$ on the wheel B, and from the slot C³ in the shaft C, and suitably operating the hand-nuts $c' c'$ on the rods D D', the wheel B may be lowered on the shaft C to the position shown in Fig. 3 or returned to the position
75 shown in Fig. 2, and may be secured in either position by the insertion of the key B' in the eyes $b b$ and slot C² or C³, as may be deemed advisable.

As shown in Fig. 1, the gateway A' is
80 divided horizontally by a partition, E, into two chutes, E' F. The part above the partition E is the high-water chute E', and the part below the partition E is the low-water chute F. Each of the chutes is provided with
85 a distinct independent gate, $a' a^2$, which is vertically adjustable in and is held in position immediately adjacent to the casing-wall by flanged projections from the latter, and preferably made integral therewith.

The vertical position of the shaft C is secured by the usual means adjacent to the upper end, but not shown, the same being deemed unnecessary. When the wheel B is adjusted to the high-water position shown in
95 Fig. 2, the water is let in over the gateway-partition E by raising the gate a^2 , and when the wheel is adjusted to the low-water position shown in Fig. 3 the water is let in through the chute F by raising the gate a' . A corre- 100

sponding stage of water will produce an efficient operation of the wheel in either of the positions shown.

Having explained the features of my improvement, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination of the transversely-slotted driving-shaft, the detachable transverse bar set into the shaft, the wheel adjustably fitted to the shaft and provided with stirrups for receiving the transverse bar and being thereby secured to the shaft, the bracket fixed to the shaft, the screw-threaded rods arranged to connect the wheel with the bracket and provided with nuts for vertically adjusting the same and raising or lowering the wheel, and the casing provided with high and low water chutes, as specified, for the purpose set forth.

2. In a water-motor, the combination of the transversely-slotted driving-shaft, the detachable transverse bar set into the shaft, the wheel adjustably fitted to the shaft and provided with stirrups for receiving the transverse bar and being thereby secured to the shaft, the bracket fixed to the shaft, and the screw-threaded rods arranged to connect the wheel with the bracket and provided with nuts for vertically adjusting the same and thereby raising or lowering the wheel, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY GEER.

Witnesses:

JOHN CALVIN,
LOIE McLAUGHLIN.