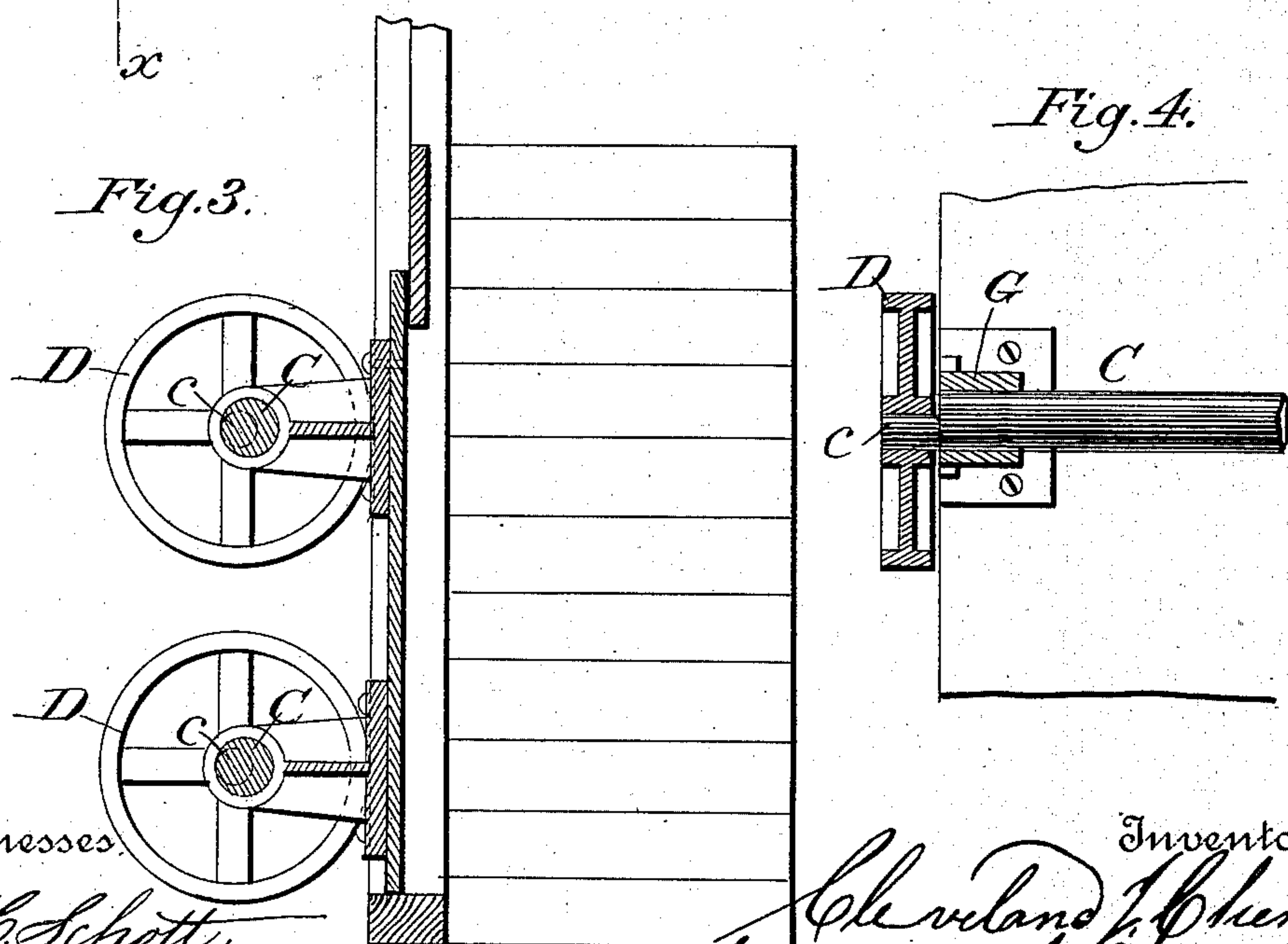
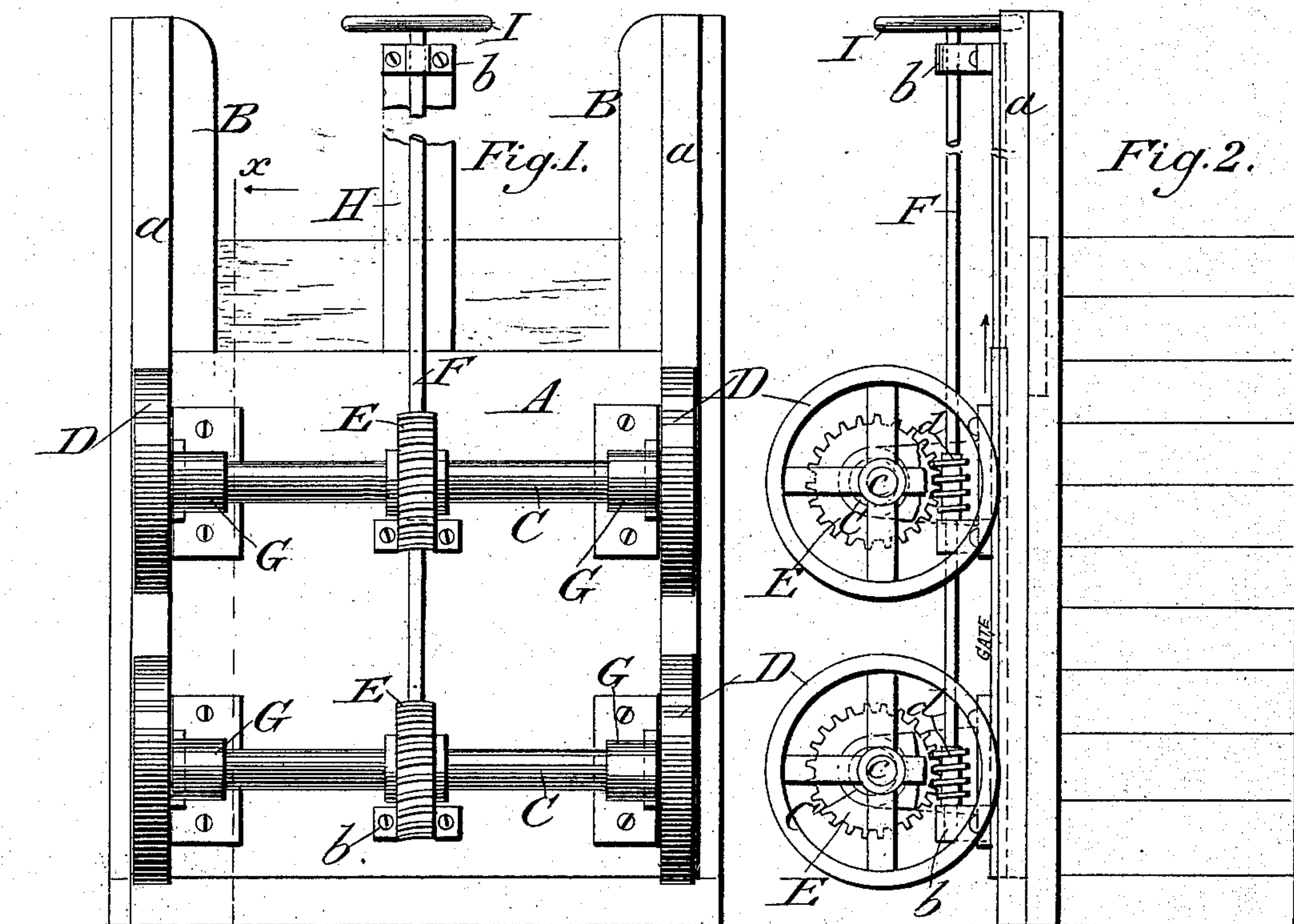


(No Model.)

C. J. CHENEY.  
WATER GATE.

No. 388,632.

Patented Aug. 28, 1888.



Witnesses

F. H. Schott.  
Fred E. Tasker.

Inventor,

By his Attorney

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# UNITED STATES PATENT OFFICE.

CLEVELAND J. CHENEY, OF LOWELL, MASSACHUSETTS.

## WATER-GATE.

SPECIFICATION forming part of Letters Patent No. 388,632, dated August 28, 1888.

Application filed April 17, 1888. Serial No. 270,995. (No model.)

*To all whom it may concern:*

Be it known that I, CLEVELAND J. CHENEY, a citizen of the United States, residing at Lowell, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Water-Gates; 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 to make and use the same.

This invention relates to an improvement in flood or sluice gates such as are commonly used in the forebays of mills, penstocks, or similar water conduits—such as stop-gates or sliding valves—to regulate the discharge of the water, the object of the invention being to provide mechanism whereby the gate may be more easily manipulated and the usual excessive friction of sliding bearings obviated and avoided; and the invention consists in the construction, arrangement, and combination of parts, substantially as will be hereinafter described and claimed.

In the accompanying drawings, illustrating my invention, Figure 1 is a front view of a water-gate provided with my improved mechanism for operating the same. Fig. 2 is a side view of the same. Fig. 3 is a vertical section on the line *x x* of Fig. 1. Fig. 4 is a detail view, partly in section, of one of the wheels, an adjacent axle-bearing, and a portion of the axle-shaft with its terminal eccentric journal.

Like letters of reference designate like parts throughout the different figures.

It is well known that in the use of water-gates as ordinarily constructed a great amount of friction of the gate upon its seat is to be overcome in lifting the same. My invention aims to obviate this disadvantage by preventing all friction, and the invention proceeds upon the principle of providing a locomotive-carriage to which the weight of the water-gate may be transferred by the operation of suitable mechanism which acts to remove the gate for a trifling distance from its seat, after which the gate may be easily lifted by causing the locomotive frame-work upon which it is loaded to move upward.

A denotes a water-gate constructed in any ordinary and familiar fashion, of a strength sufficient to withstand the head of water coming from the mill-race or through the water-

course, and it has a bearing on both sides of the flume of the dam at B B.

H is a start attached to the upper edge of the gate, and by means of suitable mechanism connected to and operative upon said start the gate may be lifted or lowered; but such lifting mechanism I have not represented in the drawings, it not being necessary in explaining the construction and operation of the present invention.

It is evident that to raise a gate thus arranged and thus bearing upon the flume when there are several tons' pressure of water against it would require the exercise of enormous power; but my device lessens very greatly the amount of power required and effectually overcomes the drag-friction of the gate upon its seat.

Horizontally across the water-surface of the gate, and preferably at about equal distances from the top and bottom of the same, are arranged two axles or axle-shafts, C C, which are supported at each end in suitable journal-boxes, G G, securely fastened to the face of the water-gate, and constructed in such a manner as to permit the axles to be located at a proper distance from the face of the gate to correspond with the radius of the wheels D D, that are carried on the extremities of said axles. The ends of said axles C C are formed with eccentric journals—that is to say, journals which project outward from the axle-shaft in a line parallel to the axis of said shaft, but not concentric with the shaft.

Fig. 4 clearly shows the manner in which the shaft C and its terminal eccentric journal, *c*, are related to each other. The journals *c* enter the boxes of the wheels D D, and upon these journals said wheels are adapted to revolve in the ordinary manner. The wheels D D roll upon iron plates *a a*, fastened perpendicularly to the flume.

It is evident that when the axles C C are revolved or rotated by any agency the water-gate A, to which they are attached, will, on account of the eccentric journaling of the ends of the shaft C, be moved toward and away from its seat. When said gate is off its seat and not in contact therewith, it can easily be moved upward, since the wheels D D will render it locomotive.

Many ways may doubtless be devised where-



by the axles C C may be rotated, when desired, sufficiently to remove the water-gate A from its seat and cause it to be loaded, as it were, upon the wheels D D. I have chosen, however, to employ in the present example of my invention a vertical worm-shaft, F, held in suitable boxes, *b b*, and having upon its upper end a manipulating-wheel, I, the worms *d d* of which shaft engage with gears E E, secured midway between the horizontal axles C C. The upper end of the worm-shaft which carries the wheel I will be located in the gate-house, so as to be conveniently operated from the platform, and by turning said wheel sufficiently the shaft F will be revolved, and consequently the horizontal axle shafts C C will be rotated sufficiently to remove the gate from its seat, after which the lifting mechanism may be brought into play and the gate easily elevated as the wheels D D roll smoothly up their vertical tracks. It is only necessary in practice to remove the gate A for half an inch or so from its seat, it being only necessary to overcome the frictional contact of the sluiceway.

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

1. The combination, with a water-gate, of the axle shafts carried thereon and provided with terminal eccentric journals, the wheels on said journals, and a mechanism for rotating

the axle-shafts, substantially as and for the purpose described.

2. The axle-shafts having terminal eccentric journals, and also having gears, the wheels on said journals, the water-gate carrying the axle shafts, and the vertical worm-shaft for actuating the gears, substantially as described.

3. The combination of the gate A, the horizontal shafts C C, carried in bearings G G on said gate, said shafts having terminal eccentric journals, *e*, the wheels D D, the gears E E, and the worm-shaft F, substantially as described.

4. The combination, with a water-gate, of the axle shafts C, having eccentric journals *e*, said shafts being carried in bearings on the gate, and suitable devices for rotating the shafts to remove the gate from its seat, substantially as described.

5. The combination of the gate A, the shafts C C, having journals *e e*, the wheels D D, the gears E E on the shafts, the worm shaft F, the start H, secured to the gate, and the tracks *a a* for the wheels, substantially as described.

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

CLEVELAND J. CHENEY.

Witnesses:

SAMUEL B. WYMAN,  
GEO. H. STEVENS.