

994,347.

K. J. THORSBY.

HEAD GATE.

APPLICATION FILED APR. 19, 1911.

Patented June 6, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

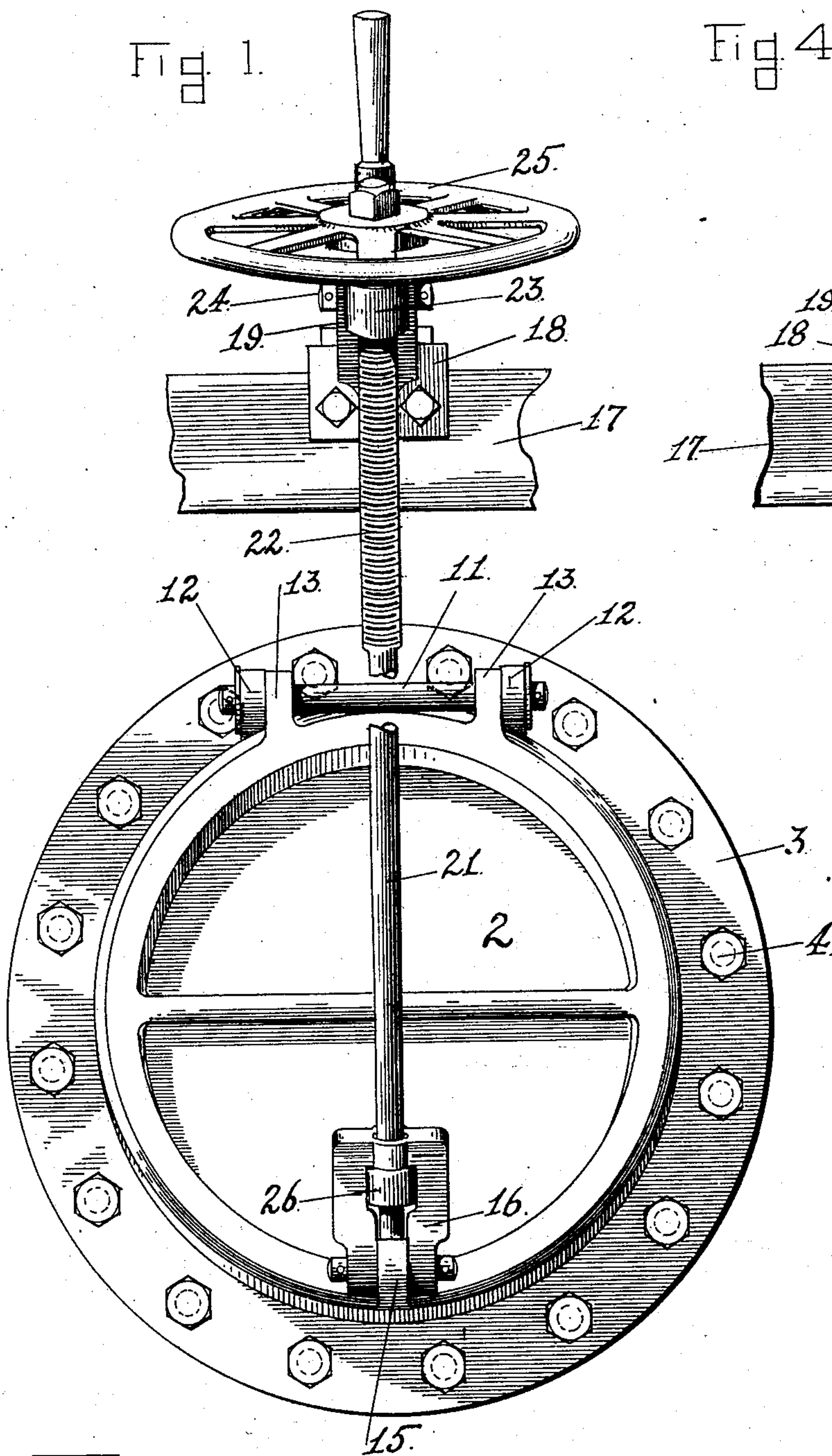
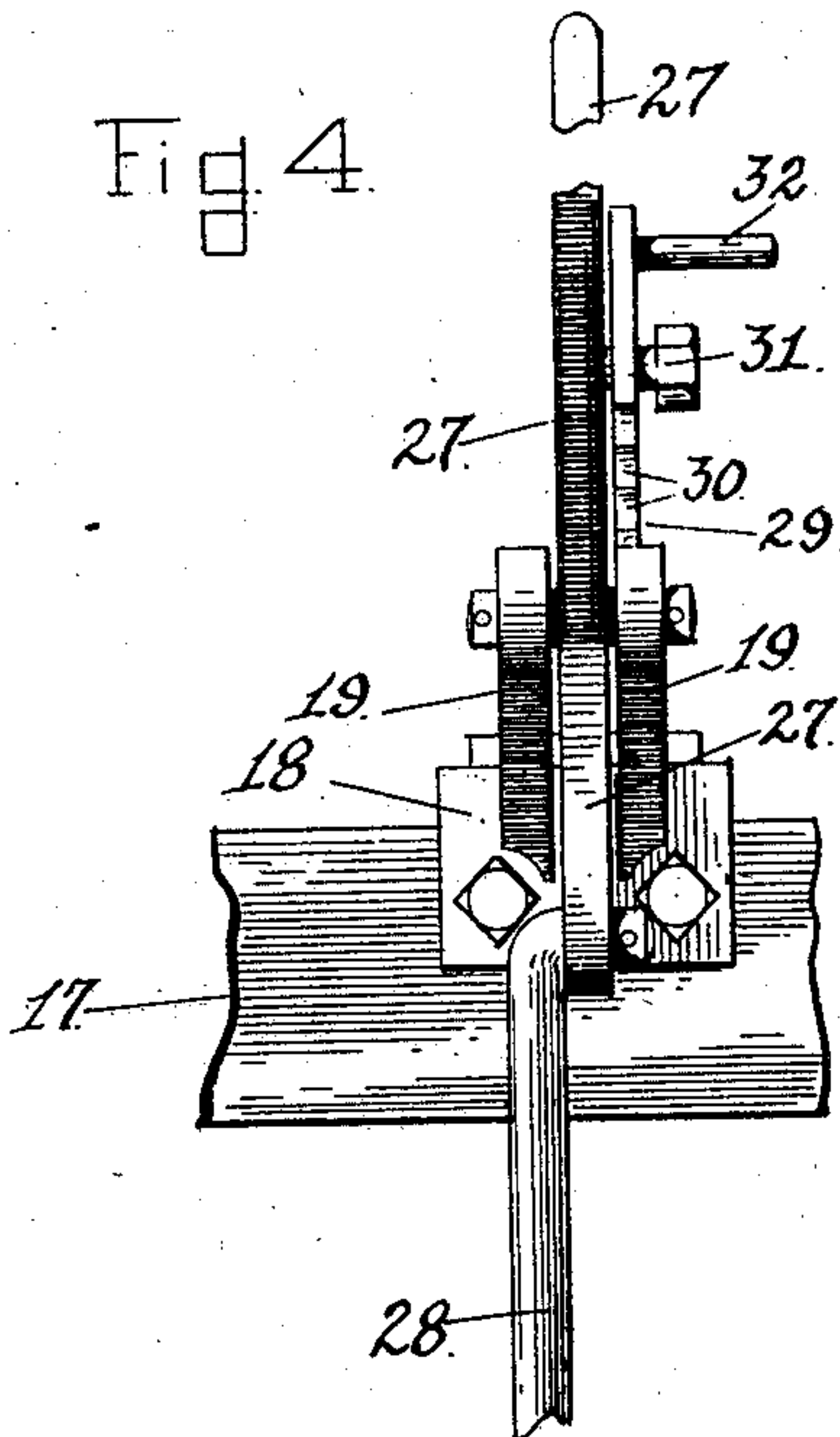


Fig. 4.



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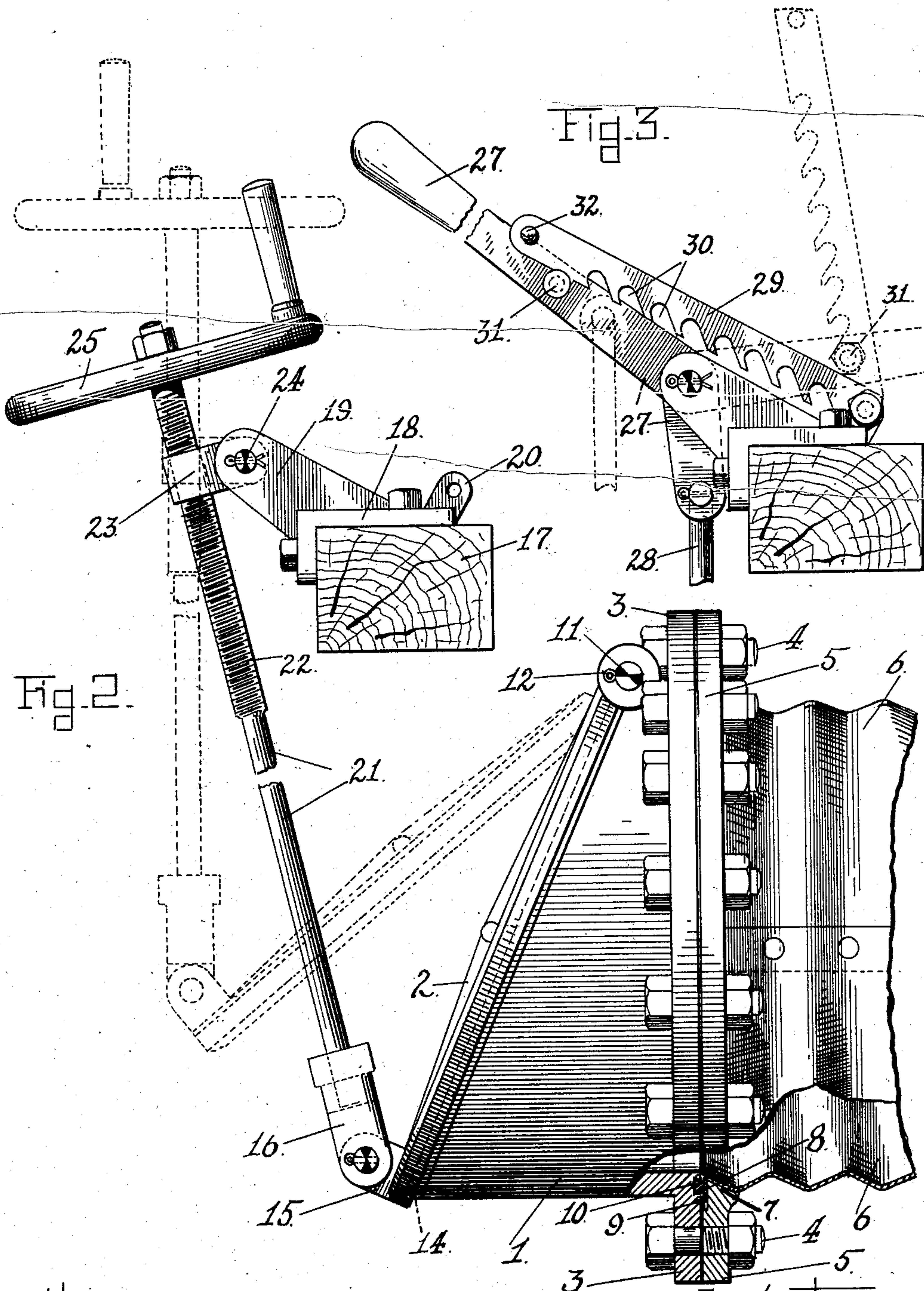
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# UNITED STATES PATENT OFFICE.

KARL JOHAN THORSBY, OF OAKLAND, CALIFORNIA, ASSIGNOR TO CALIFORNIA CORRUGATED CULVERT COMPANY, OF OAKLAND, CALIFORNIA, A CORPORATION OF CALIFORNIA.

## HEAD-GATE.

994,347.

Specification of Letters Patent.

Patented June 6, 1911.

Application filed April 19, 1911. Serial No. 622,075.

*To all whom it may concern:*

Be it known that I, KARL JOHAN THORSBY, a subject of the King of Norway, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Head-Gates, of which the following is a specification.

My invention relates to the class of head-gates for controlling the flow of water from reservoirs, canals, and the like.

The objects of my invention are to simplify the construction in a manner that will result in reducing the machine work or machine finishing to a minimum, thereby reducing the cost of manufacture; also to provide simple and effective means for attaching the head-gate to the end of metallic pipes; and also to provide a novel and simple construction of the lifting means, adapting the gate for a lever or a screw adjustment according to the requirements of the case.

With these ends in view, my invention consists in the novel head-gate which I shall now fully describe and claim, by reference to the accompanying drawings, in which—

Figure 1 is a front view of the head-gate. Fig. 2 is a side elevation, partly in section, of the same. Fig. 3 is a side view of the lever attachment which may be substituted for the screw attachment of Figs. 1 and 2, as the means for operating the gate. Fig. 4 is a front view of the lever attachment of Fig. 3.

1 is a pipe-section which forms the gate-carrier, the forward end of said section being beveled to receive the gate 2 and to constitute the seat therefor. The rear end of the pipe-section 1 is formed with a flange 3 which is secured by bolts 4 to a flange 5. The flange 5 is an independent ring, its inner surface or surface of lesser diameter being shaped to conform to the outer surface of pipe 6 over which it is fitted, which pipe is the conduit which the gate is to control. In the present instance, I have shown the conduit pipe 6 as of the corrugated metallic type, and said independent flange 5 is, therefore, shaped to conform, as indicated at 7 in Fig. 2, to the corrugations of said pipe 6,

and the end of said pipe 6, as shown at 8, is bent over the flange 5 and is seated in a recess 9 formed in the face of said flange. A packing 10, preferably a square packing, is set in a groove in the adjacent face of the pipe-section 1, and is tightly clamped up against the bent end 8 of the conduit pipe 6, by the bolts 4, thus not only securing together the pipe-section 1, the flange 5, and the conduit pipe 6, but also making a water-tight joint between the gate structure and the conduit pipe.

The gate 2 is hinged at its upper portion to the pipe-section 1, by means of a hinge pin 11, which passes through lugs 12 formed on the rear flange 3 of the pipe-section 1, and through intervening ears 13 on the gate 2; and said gate lies upon and finds a seat against the beveled front of the section 1 through the intervention of a packing 14, preferably a square packing, inserted in the gate, thus making a water-tight gate seat without having the face of the pipe section 1 machine finished. The gate is kept tight by the pressure of the water, and the greater this pressure the tighter the joint.

In order to lift the gate and to adjust it in any desired position, means are provided looking to the use of either a screw lift or a lever lift, or the substitution of one for the other. The lower portion of the gate on its outer face is formed with a lug 15 to which is pivotally connected a link 16.

In some suitable overlying position is a timber 17 to which is secured a bracket 18, formed with a forwardly projecting arm 19 and a rearwardly projecting lug 20.

21 is a pull rod. When the lifting means are to depend on screw action, the upper end of the rod 21 is threaded as shown in Figs. 1 and 2 at 22. This threaded portion engages a nut 23 hinged by a pin 24 in the end of the bracket arm 19, and the upper end of the rod has a hand wheel 25. The lower end of the rod is fitted to the link 16 by a pull collar 26, as seen in Fig. 1. The dotted lines in Fig. 2 show the position of parts in opening the gate, which operation is effected by turning the pull rod 21.

When a lever is to be used as the means for opening the gate, the construction is as



shown in Figs. 3 and 4. The nut 23 and the screw pull rod 21 with its foot link 16 of Figs. 1 and 2 are removed. In the bracket arm 19 is pivoted at its angle an angle-lever 27, to the short arm of which is hooked the bent end of a pull rod 28. The lower end of the pull rod 28 is to be bent also and to hook into the lug 15 of the gate 2. Pivoted to the rear lug 20 of the bracket 18 is an adjusting bar 29 formed with a series of notches 30. The lever 27 carries a holding stud 31, which according to the relative positions of the lever and the adjusting bar 29, is adapted to enter and engage any of the notches of said bar, thereby locking the lever in various positions and adjusting the flow of water. 32 is a handle for convenience in manipulating the adjusting bar 29. The dotted lines in Fig. 3 show the position of the lower and adjusting bar when the gate is open for the maximum flow.

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

1. In a head-gate, the combination of a pipe section forming the gate carrier, said pipe section having a flange at its rear end; a gate hinged to said pipe section and adapted to seat against its forward end; a conduit pipe; an independent flange conforming to and encircling the conduit pipe, the said pipe having its end bent over the face of the independent flange; and bolts clamping the flange of the pipe section and the independent flange of the pipe conduit together.

2. In a head-gate, the combination of a pipe section forming the gate carrier, said pipe section having a flange at its rear end; a gate hinged to said pipe section and adapted to seat against its forward end; a conduit pipe; an independent flange conforming to and encircling the conduit pipe, the said pipe having its end bent over the face of the independent flange, and lying in a recess therein; packing fitted in the inner end of the pipe section and seating against the bent end of the conduit pipe; and bolts clamping the flange of the pipe section and the independent flange of the pipe conduit together and forming a water tight joint between the gate structure and the conduit pipe.

3. In a head-gate, the combination of a pipe section forming the gate carrier, said pipe section having a flange at its rear end; a gate hinged to said pipe section and having packing fitted in its inner face adapted to seat against the forward end of said pipe section to form a water tight pressure joint therewith; a conduit pipe; an independent flange conforming to and encircling the conduit pipe, the said pipe having its end bent over the face of the independent flange, and lying in a recess therein; packing fitted in the inner end of the pipe section and seating

against the bent end of the conduit pipe; and bolts clamping the flange of the pipe section and the independent flange of the pipe conduit together and forming a water tight joint between the gate structure and the conduit pipe.

4. In a head-gate, the combination of a gate hinged at its upper portion to its conduit connections and having a lug on the outer face of its lower portion; an independent fixed bracket, a pull-rod pivotally connected at its lower end with the lug of the gate; and means, pivotally connected with the fixed bracket, for lifting and lowering said pull rod.

5. In a head-gate, the combination of a gate hinged at its upper portion to its conduit connections and having a lug on the outer face of its lower portion; an independent fixed bracket having a forwardly projecting arm and a rear lug; a pull-rod pivotally connected at its lower end with the lug of the gate; and means, pivotally connected with the arm of the fixed bracket, for lifting and lowering said pull rod.

6. In a head-gate, the combination of a gate hinged at its upper portion to its conduit connections and having a lug on the outer face of its lower portion; an independent fixed bracket having a forwardly projecting arm and a rear lug; a pull rod pivotally connected at its lower end with the lug of the gate; an angle lever pivoted in the arm of the fixed bracket and having a pivotal connection with the upper end of the pull rod; a notched adjusting bar pivoted in the lug of the fixed bracket; and a holding stud on the angle lever to engage the notches of the adjusting bar.

7. In a head-gate, the combination of a pipe section forming the gate carrier, said pipe section having a beveled front; means for connecting the rear end of said pipe section with the conduit pipe; a gate hinged at its upper portion to the pipe section and adapted to seat against the beveled front of said section, said gate having a lug on the outer face of its lower portion; an independent fixed bracket; a pull-rod pivotally connected at its lower end with the lug of the gate; and means, connected with the fixed bracket, for lifting and lowering said pull rod.

8. In a head-gate, the combination of a pipe section forming the gate carrier, said pipe section having a beveled front; means for connecting the rear end of said pipe section with the conduit pipe; a gate hinged at its upper portion to the pipe section and adapted to seat against the beveled front of said section, said gate having a lug on the outer face of its lower portion; an independent fixed bracket having a forwardly projecting arm and a rear lug; a pull rod pivotally connected at its lower end with



the lug of the gate; an angle lever pivoted in the arm of the fixed bracket and having a pivotal connection with the upper end of the pull rod; a notched adjusting bar pivoted  
5 in the lug of the fixed bracket; and a holding stud on the angle lever to engage the notches of the adjusting bar.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

KARL JOHAN THORSBY.

Witnesses:

H. W. FORCE,

ROBERT B. GAYLORD.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."

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