K. J. THORSBY.

RADIAL HEAD GATE.

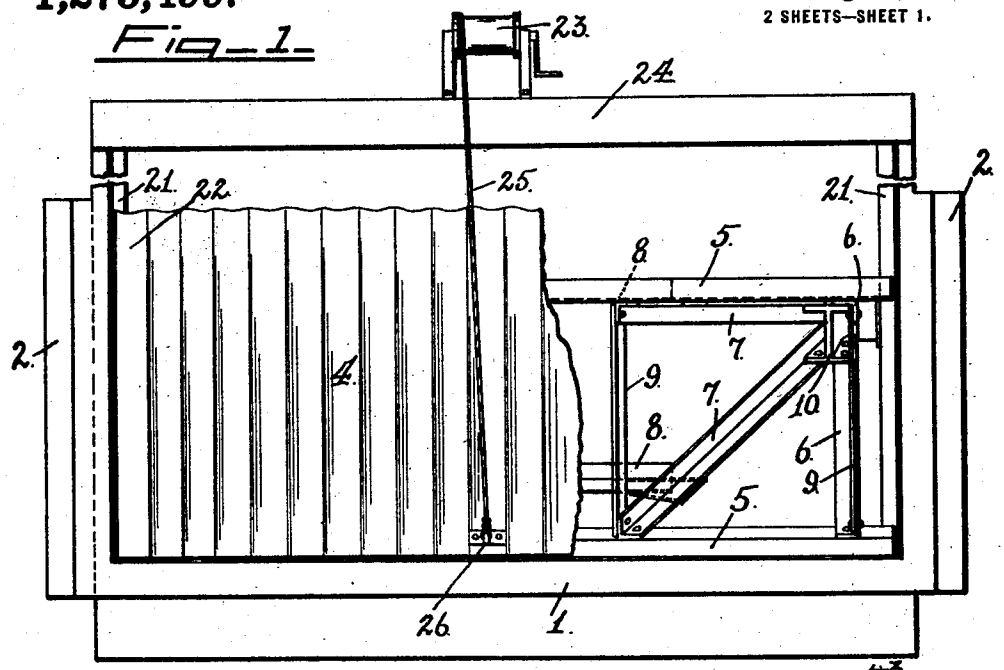
APPLICATION FILED DEC. 19, 1916.

1,275,499.

Patented Aug. 13, 1918.

2 SHEETS—SHEET 1.

Fig. 1.



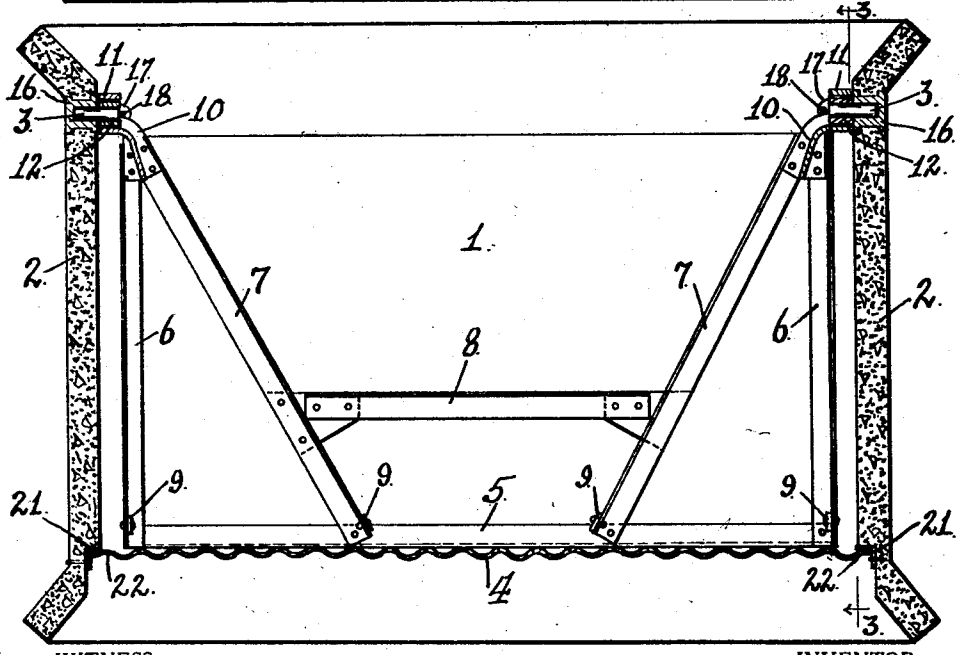


Fig. 2.

WITNESS

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2 SHEETS—SHEET 2.

Fig. 3.

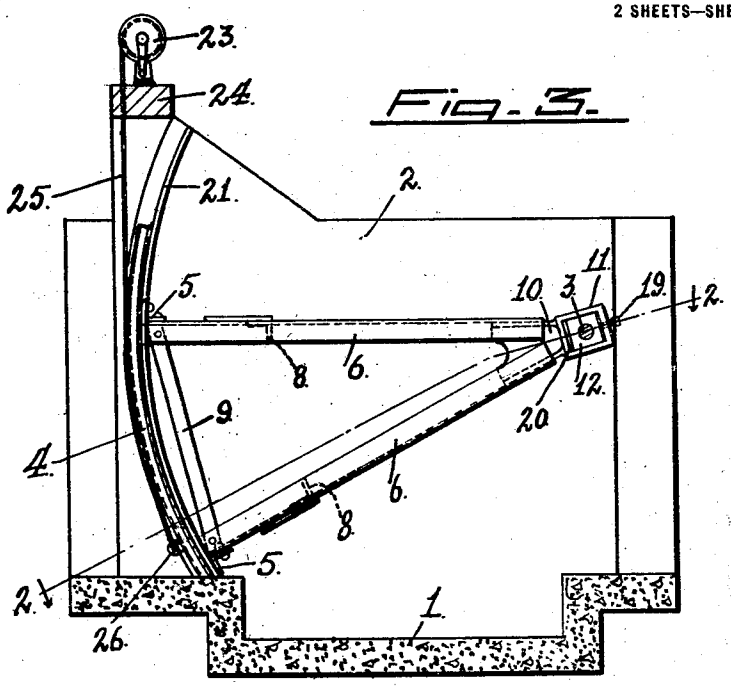
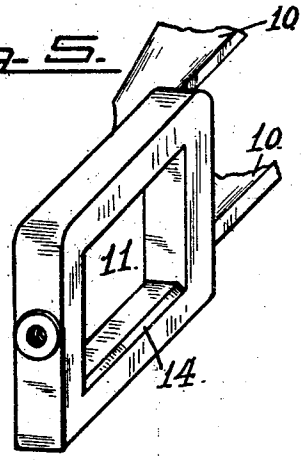


Fig. 5.



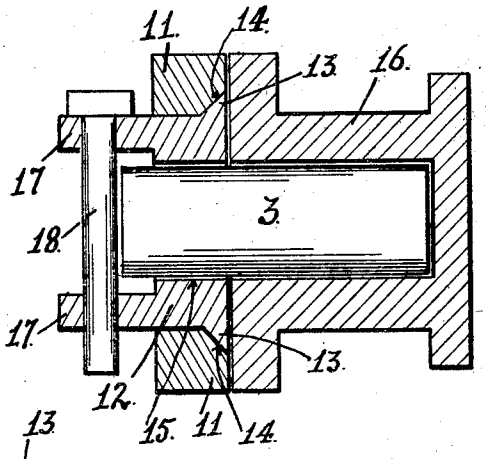


Fig. 4.

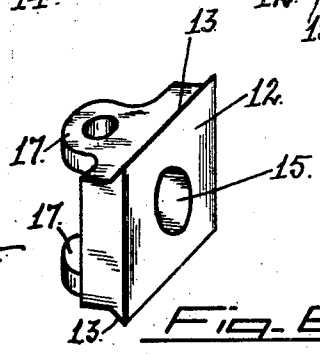


Fig. 6.

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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.

RADIAL HEAD-GATE.

1,275,499. Specification of Letters Patent. Patented Aug. 13, 1918.

Application filed December 19, 1916. Serial No. 137,918.

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 Radial Head-Gates, of which the following is a specification.

My invention relates to the class of head or control gates for canals, ditches and flumes, and more particularly to the type of radial gates.

The object of the invention is to provide a gate of the described type which is light in weight, and therefore cheap to manufacture and easy to install and operate, and which, at the same time, is sufficiently strong to be durable under continuous use.

With this object in view, my invention consists in the novel construction hereinafter described with reference to the accompanying sheets of drawings, wherein:—

Figure 1 is a front elevation of my gate, part of the face thereof being broken away to show the frame.

Fig. 2 is a sectional plan view of the gate and its pier, taken in the direction of the arrows on the line 2—2 of Fig. 3.

Fig. 3 is a sectional end elevation taken in the direction of the arrows on the line 3—3 of Fig. 2.

Fig. 4 is a sectional detail of one of the pivot pins and the mounting therefor.

Fig. 5 is a perspective detail of one of the adjustable supporting brackets for the end frames.

Fig. 6 is a perspective detail of the pivot-pin-block upon which the bracket shown in Fig. 5 is mounted.

In the drawings, the reference numerals 1 and 2, designate respectively, the bottom and the side walls of the pier or portion of the flume within which the gate operates, said pier being preferably constructed of concrete. The gate proper comprises a radial frame-work, presently to be described, which is pivoted, in a horizontal plane, at its down-stream side upon pins 3 mounted in the side pier walls 2, which frame carries a face member 4, formed as a segment of a cylinder whose axis is the line of the pivot 3.

The face 4 is constructed of corrugated sheet metal, as illustrated, such construction providing the greatest strength, to resist the pressure of the water, with the least weight of material. The reinforcing corrugations best lie in vertical planes, that is from top to bottom or transverse of the face, as this disposition, being in the width of the face, gives to it the greatest rigidity.

The frame of the gate comprises spaced horizontally disposed members 5, preferably of angle section, to which the face 4 is secured in any desired manner, and radially disposed end members 6, extending from said horizontal members toward the pivots. Diagonal braces 7 are provided to support the horizontal members being the end members, said diagonal braces being connected by horizontal tie bars 8. Vertically disposed chord members 9, extending between the outer ends of the alined upper and lower end members 6 and diagonal braces 7, prevent the separation of said outer ends and the flattening or buckling of the face.

The inner ends of the end members 6 and the braces 7 of each end of the frame converge toward the pivots and are secured to brackets 10. Said brackets are formed with rectangular apertured members 11, Figs. 3 and 5, in which are adjustably mounted the pivot-pin-blocks 12, Figs. 3, 4 and 6. The edges of said blocks are formed with flanges 13, which engage beveled faces 14 in the sides of the bracket apertured members 11, and thereby hold said blocks within said members. The blocks 12 are provided with holes 15, to receive the inner ends of the pivot pins 3, the ends of said pins lying within socket members 16 secured to the pier walls 2, or as shown in Fig. 2, embedded in said walls.

Said blocks 12 are further provided, on their inner faces, with lugs 17, through which is passed a retaining pin 18, lying over the end of the pivot pin 3 and retaining the same in position as shown in Fig. 4.

The blocks 12 are adjustable, radially, within the apertured members 11 of the socket members 10, and set screws 19, Fig. 3 are provided in said brackets, for clamping said blocks against shims 20. The sides 2 of the pier have segmental arcuate guide flanges 21, Figs. 2 and 3, preferably formed of angle members embedded in the concrete, against which lie, in close relation, the overlapping ends 22, Fig. 2, of the face 4. The position of the face 4 relative to said guide flanges 21 is adjusted by means of the shims 20 and the set screws 19, the entire gate

being shifted radially with respect to its pivot pins 3. A comparatively tight joint can thus be made between the ends 22 of the face and the guide flanges 21, without rendering the gate inoperative through excessive friction. This joint is made possible by the fact of the corrugations of the face running vertically, so that the ends 22 may be flat and seat accurately on the flat guide flanges 21.

For raising and lowering the gate, I have shown a windlass 23, Figs. 1 and 3, mounted upon a bridge 24 extending across the pier over the gate, said windlass having a cable 25 wound upon its drum and attached to the gate face at 26.

It will be readily understood that, on account of the peculiar construction of my gate, involving the use of a stiff but exceedingly light corrugated face supported upon a light skeleton frame, I am enabled to make a very much lighter and consequently less expensive gate than any now known to the art, and moreover that the installation of such a gate will be less expensive and its operation easier, than is the case with the heavier types in present use.

I claim:—

1. A head-gate of the radial type comprising a face formed as a segment of a cylinder; a skeleton frame for carrying said face comprising radially disposed end members; a supporting bracket to which the inner ends of the radial members of each end are connected; a pivot block carried by each bracket and adjustable radially thereof; and a means for pivotally supporting said blocks in the axis of said face.

2. A head-gate of the radial type comprising a face formed as a segment of a cylinder; a skeleton frame for carrying said face comprising radially disposed end members; a supporting bracket to which the inner ends of the radial members of each end are connected; a pivot block carried by each bracket and adjustable radially thereof; a fixed socket member mounted adjacent to each block; a pivot pin passing through said block and into said socket member and lying in the axis of said face; a pair of lugs projecting outwardly from the exposed face of said block; and a removable retaining pin passing through said lugs and adapted to retain said pivot pin in position.

3. A head-gate of the radial type comprising a face formed as a segment of a cylinder; a skeleton frame for carrying said face comprising radially disposed end members; a supporting bracket to which the inner ends of the radial members of each end are connected; a pivot block carried by each braceket and adjustable radially thereof; inter-engaging flanges formed on said block and said bracket to prevent the inward removal of the former; a fixed socket member mounted adjacent to each block and preventing its outward removal; and a pin pivotally connecting said block and said socket member in the axis of said face.

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

KARL JOHAN THORSBY.

Witnesses:
W. E. COCHRAN,
E. H. WIEBEN.

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