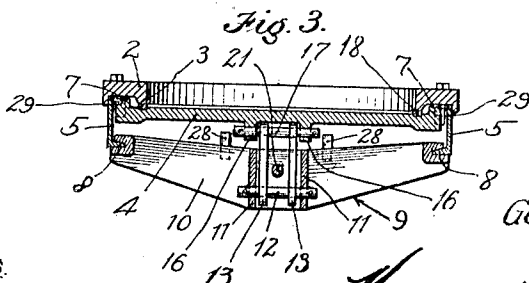
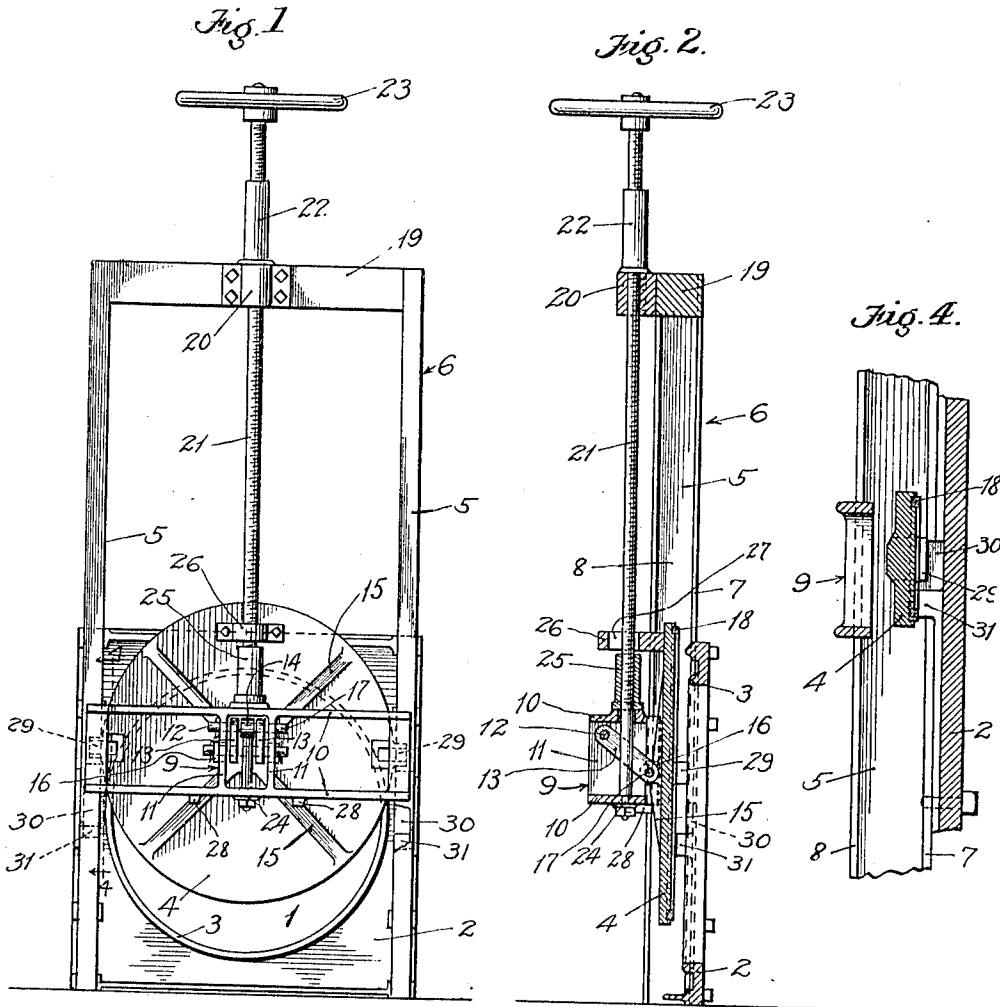


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VALVE.

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966,754.

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GEORGE E. KELLAR, OF COVINA, CALIFORNIA, ASSIGNOR TO KELLAR-THOMASON MANUFACTURING COMPANY, OF COVINA, CALIFORNIA, A CORPORATION OF CALIFORNIA.

VALVE.

966,754.

Specification of Letters Patent.

Patented Aug. 9, 1910.

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To all whom it may concern:

Be it known that I, GEORGE E. KELLAR, a citizen of the United States, residing at Covina, in the county of Los Angeles and State of California, have invented new and useful Improvements in Valves, of which the following is a specification.

This invention relates to valves, and particularly to gate valves.

The object of the invention is to produce a gate valve having an improved construction for mounting the valve disk or gate which will enable the valve to be readily opened and which will insure a tight closure of the disk or gate upon its seat. The construction is such that in coming upon its seat, the valve disk or gate slides edgewise across the opening in the seat, and when the disk has arrived opposite to the opening, it will advance, come upon the seat and become jammed securely thereupon. In opening the valve the gate or disk recedes from the seat and is then withdrawn by a vertical movement.

The invention consists in the construction and combination of parts, to be more fully described hereinafter and particularly set forth in the claims.

In the drawing annexed hereto which fully illustrates my invention, Figure 1 is a front elevation of the valve showing the valve partly open. Fig. 2 is a vertical central section taken through the valve. Fig. 3 is a horizontal cross section taken through the center of the valve seat and opening, and showing the gate of the valve resting upon its seat. Fig. 4 is a vertical section taken on the line 4-4 of Fig. 1 upon an enlarged scale and particularly illustrating the manner in which the valve disk or gate is brought into position upon the valve seat.

Referring more particularly to the parts, 1 represents the valve opening which is formed in a valve plate 2, said opening being formed with an outwardly projecting seat or head 3 which forms a seat for the valve disk or gate 4. The side edges of the valve plate 2 are rigidly attached to the vertical side bars 5 of a valve frame 6. These side bars 5 are in the form of channels, the flanges 7 and 8 of which project inwardly, as indicated most clearly in Fig. 3. The valve plate is secured to the flanges 7 while the flanges 8 form guides for a sliding cross head 9. This cross head is formed of two par-

allel flat bars 10, the middle points of which are offset outwardly as indicated, and near their middle points the bars 10 are connected by vertical webs 11 as shown. Near their upper ends, the webs 11 are connected by a pivot pin 12 and to this pivot pin a pair of links 13 are attached. Between the links the pivot pin 12 is provided with a fixed collar 14 which maintains the links apart as will be readily understood. The rear face of the valve disk 4 is provided with radial reinforcing ribs 15 and near the center of the disk, lugs 16 are provided, as indicated in Fig. 3 and these lugs are connected by a pivot pin 17, to which the inner ends of the links 13 attach. As indicated most clearly in Fig. 2 these links incline downwardly in the direction of the valve disk 4 and enable the disk to swing toward the seat 3, or away from the seat as will be readily understood. On the inner face of the valve disk an annular groove is formed which receives a packing ring 18 which comes upon the seat and renders the valve water tight or air tight when closed.

The frame 6 comprises a cross bar 19 which connects the upper ends of the side bars 5, and this cross bar 19, at its middle point, is provided with a bearing 20 having a threaded bore through which passes a threaded spindle or stem 21. On the upper side of the bearing 20 a sleeve 22 is provided through which the upper portion of the stem 21 passes loosely. The upper end of the stem 21 is provided with a rigid hand wheel 23 by means of which the stem may be rotated. The stem 21 passes completely through the cross head, the lower end of the stem being connected by a swivel connection 24 with the lower bar of the cross head, as indicated most clearly in Fig. 2.

On the stem 21 above the cross head a threaded sleeve or nut 25 is fixed, and the lower end of this sleeve seats on the upper side of the upper bar of the cross head. Near its upper edge the disk 4 is provided with a guide bracket 26 which is formed with an elongated opening or slot 27 which guides the upper edge of the disk on the stem when the disk advances toward the seat or recedes therefrom. When the valve is partly opened as indicated in Fig. 2 it is supported in a substantially vertical plane by means of lugs 28 which project inwardly from the lower bar of the cross head as

shown in Fig. 2. In this position of the valve disk, the inner end of the slot 27 lies substantially against the side of the stem 21 which prevents the upper edge of the disk from tilting away from the seat. Near its side edges the valve disk is provided with dogs or dog blocks 29 which project inwardly toward the flanges 7. These dogs are of substantially square form and present flat faces which slide on the inner sides of the flanges 7 when the valve is sliding toward or away from its seat.

Referring especially to Fig. 4, on opposite sides of the valve plate, notches or recesses 30 are formed, and at these notches the flanges 7 are cut away so as to assist in forming the recesses or notches, as will be readily understood. Below these notches the valve plate is provided with stops 31 which are in the form of square lugs. These stops project directly into the path of the dogs 29, and the notches 30 are of just sufficient width to receive the dogs 29 when the valve disk comes upon its seat.

The mode of operation of the valve is substantially as follows: When the hand wheel 23 is rotated in the proper direction, the stem 21 will advance downwardly so as to carry the valve disk 4 down into position before the valve opening 1. When the valve disk has arrived at a substantially central position with respect to the valve opening, the dogs 29 will strike the stops 31 and prevent a further sliding movement of the disk. After this takes place, the rotation of the stem 21 will continue to lower the cross head 9, and the links 13 will operate to move the valve disk inwardly toward its seat by a horizontal or lateral shifting movement. In this movement it will be understood that the valve disk is supported on the dogs 29, the lower edges of which rest on the upper faces of the stops 31. In this way the valve disk can be made to advance upon its seat and can be held securely thereupon. The stops 31 are located so that they will arrest the valve disk in a central position so that when the valve is completely closed, the packing ring 18 will be disposed with precision upon the valve seat 3. In opening the valve, a rotation of the stem 21 in the proper direction raises the cross head, and as the cross head rises, the valve disk 4 will fall away from the valve seat; in other words, it

will withdraw laterally from the seat a sufficient distance to disengage the dogs 29 from the notches 30. When the dogs are completely disengaged from the notches, the valve disk will commence to rise with the cross head, and the stem can then be rotated until the disk completely uncovers the opening 1. Special attention is called to the manner in which the lugs 29 cooperate with the stops 31 to arrest the valve disk when it is directly opposite and centrally disposed before the valve opening.

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

1. A valve having a seat, a cross head, means for guiding said cross head transversely of said seat, a disk, links guiding said disk so as to swing in an arc toward or away from said seat, a member for advancing said cross head and for arresting the swinging movement of said disk, said member affording means for advancing said disk on to said seat when arrested.

2. A valve having a seat, a cross head, means for guiding said cross head transversely of said seat, a disk, parallel inclined links connecting said disk with said cross head, means for arresting said disk opposite said seat, and means for advancing said cross head when said disk is opposite said seat, whereby the continued movement of said cross head advances said disk laterally upon said seat.

3. A valve having a seat, a cross head, means for guiding said cross head transversely of said seat, a valve disk attached to said cross head and having a limited movement thereupon toward said seat and away from said seat, said disk having dogs thereupon, guide members for said dogs and having notches adapted to receive said dogs when said disk comes upon said seat, means for advancing said cross head and stops disposed in the path of said dogs and affording means for arresting the transverse movement of said disk.

In witness that I claim the foregoing I have hereunto subscribed my name this 18th day of November, 1909.

GEORGE E. KELLAR.

Witnesses:

F. D. AMMEN,
ETHEL COLEMAN.