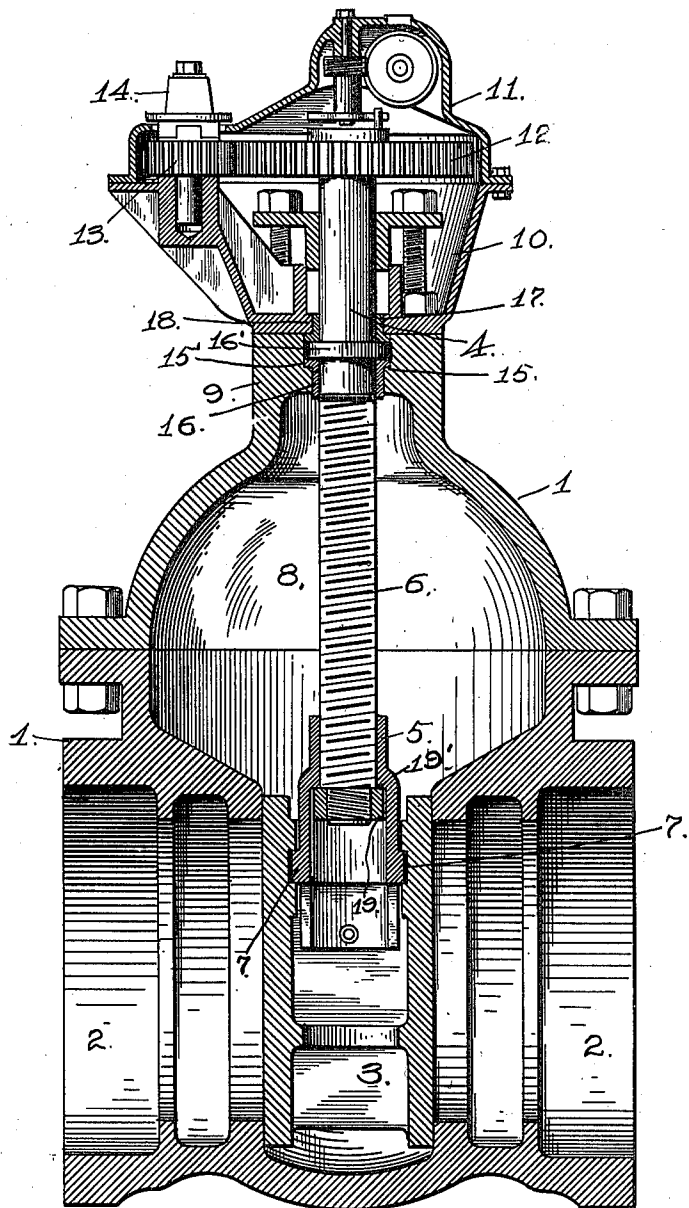


D. LIBBY, JR.
 MEANS FOR CONTROLLING THE VALVE MOVEMENT OF GATE VALVES.
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Witnesses:
 Arthur L. Lee.
 S. Constance.

Inventor.
 Dorrville Libby Jr.
 by W. A. Orrer
 His Atty.

UNITED STATES PATENT OFFICE.

DORVILLE LIBBY, JR., OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO THE PELTON WATER WHEEL COMPANY, OF SAN FRANCISCO, CALIFORNIA, A CORPORATION OF CALIFORNIA.

MEANS FOR CONTROLLING THE VALVE MOVEMENT OF GATE-VALVES.

963,230.

Specification of Letters Patent.

Patented July 5, 1910.

Application filed October 11, 1909. Serial No. 522,043.

To all whom it may concern:

Be it known that I, DORVILLE LIBBY, JR., a citizen of the United States, residing in the city and county of San Francisco and State of California, have invented certain new and useful Improvements in Means for Controlling the Valve Movement of Gate-Valves, of which the following is a specification.

10 The hereinafter described invention relates to means for limiting or arresting the travel of the valve disk, at the limits of its movements for opening and closing the valved outlets of a valve casing; the object of the
15 invention being to avoid the strains which tend to cause breakage and oftentimes does cause breakage of the casing body, more especially on the closing movement of the valve, and to provide against the bending
20 of the valve stem and dislodgment of the valve from its seat, also to prevent water leakage at the point where the valve stem emerges from the casing body, whether the valve be closed or opened, so that packing of the stem may be accomplished while the
25 valve casing is filled with water under pressure.

In the drawings, wherein is illustrated a vertical sectional view of the valve casing
30 and the working parts arranged therein, the numeral 1 is used to designate the valve casing proper, and 2 the outlets or water-ways leading therefrom. These outlets or water-ways are controlled by the slidable valve 3,
35 which, in the present case, is a double disk valve. The said valve is held to a threaded valve stem 4, rotatably mounted within the valve casing, by means of a traveling collar 5, which collar is internally screw-threaded
40 and works on the screw-threaded section 6 of the valve stem 4. This traveling collar 5 is formed with shouldered extensions 7, which rest loosely within the grooved or circular seat 7' in the inner face of the valve
45 3, so that the valve is flexibly held to the traveling collar 5. The screw-threaded portion of the valve stem 4 is situated within the pressure chamber 8 of the valve casing, the upper end portion of the rotatable stem extending through the contracted portion 9
50 of the valve casing and into the hood or bonnet 10 secured thereto and which is closed by the removable cap or cover 11, bolted thereto. This hood 10 constitutes the upper

or head section of the valve casing and 55 within the same is situated the drive means for operating the valve stem to impart rotation thereto. In the present case, the drive means consists of a gear 12 on the valve stem meshing with a pinion 13, which pinion is 60 operated by a drive nut 14, held in locked engagement therewith.

Within the upper portion of the valve casing is formed an enlarged seat 15, on which rests the circular flange 15' of a 65 gland 16, through which extends the lower unthreaded portion of the valve stem 4, and on the circular flange of which bears the thrust collar 16' of the valve stem, which in turn is held to its seat by the upper gland 70 17, secured in place by the inner wall portion 18 of the valve casing section 10 bearing thereon. A water tight joint is thus formed between the valve stem 4 and the pressure chamber 8 of the valve casing, 75 which permits the cap or cover 11 of the hood or head section 10 being uncovered for permitting of repair of the drive mechanism and packing of the working parts located therein without water leakage taking place, 80 which is a feature of importance where the chamber 8 is filled with water under pressure.

The traveling collar 5 is held onto the valve stem 4, or rather prevented from un- 85 screwing therefrom, by means of a lock nut 19, screwed onto the lower end of the valve stem, which nut serves as a limit stop for the downward travel of the collar 5, by reason of the inner shoulder portion 19' there- 90 of impinging thereon when the collar reaches its lowermost position, which is the full downward stroke of the valve 3. As rotation is imparted to the valve stem 4, the traveling collar 5 will screw onto or off of 95 the screw threaded portion of the said stem, depending on the direction of rotation imparted thereto. On a rotation of the valve stem to open or unseat the valve 3, the traveling collar will move upwardly on the 100 valve stem, carrying the valve 3 therewith, until its upward movement is arrested by the upper end of the collar bearing against the lower end of the gland 16, when the collar is brought to a state of rest. On an opposite 105 rotation being given to the valve stem, the traveling collar will descend until the shouldered portion 19' bears onto the lock nut 19,

by which time the valve 3 will be fully seated and further downward movement of the traveling collar arrested. By this means the downward stroke or movement of the traveling collar is positively arrested on the valve being fully seated, hence danger of the valve casing being broken by an excess of pressure being applied to the valve after having seated itself is avoided, which permits of the valve casing being constructed of lighter material than heretofore, where sufficient metal had to be incorporated therein to resist such excessive strains.

Having thus described the invention what is claimed as new and desired to be secured by Letters Patent is:—

In a gate valve, the combination with the valve casing provided with a pressure chamber, a hood section united to the casing and forming a chamber for the drive means, connection between said means and a rota-

table non-vertically movable stem extended through the pressure chamber and into the hood section, a water tight joint between the pressure chamber of the casing and the chamber of the hood, a slide valve for controlling the water-ways of the valve casing, a traveling collar movable on the screw-threaded portion of the valve stem within the pressure chamber, a flexible connection between said collar and the slide valve, and means within the valve casing and on the valve stem for arresting the movement of the traveling collar on the same reaching the limit of its stroke in either direction.

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

DORVILLE LIBBY, JR.

Witnesses:

N. A. ACKER,
D. B. RICHARDS.